

Critical Political Economy

Complexity, rationality, and the logic of
post-orthodox pluralism

Christian Arnsperger

**Foreword by
David Colander**

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Critical Political Economy

Does today's mainstream economics really provide the theoretical concepts and the teaching and research practices that could foster a truly free economy? Isn't it, on the contrary, a discipline that stifles criticism and neglects our most basic faculties of reflection and imagination? This book asks how a more liberating economics could be constructed and taught. It suggests that if economists today are serious about emancipation and empowerment, they will have to radically change their conception about what it means for a citizen to act rationally in a complex society.

Arnsperger emphasizes that current economics neglects an important fact: Many of us ask not only "what's in it for us," within a given socio-economic context; we also care about the context itself. The author argues that if citizens keen on exercising their critical reason actually demanded economic theories that allowed them to do so, economics would have to become a constantly emerging, open-ended knowledge process. He claims that in a truly free economy, there would be no all-out war between "orthodox" and "heterodox" approaches, but an intricate and unpredictable "post-orthodox" pluralism that would emerge from the citizens' own complex interactions.

Offering an original and path-breaking combination of insights from Hayek, the theory of complexity, and the Frankfurt School of social criticism, Arnsperger discusses how such a free economy would generate its specific brand of economics, called "Critical Political Economy." The result is a challenging and sometimes disturbing book which will be of interest to economists as well as philosophers of social science.

Christian Arnsperger is Senior Research Fellow with the Belgian National Science Foundation (FRS-FNRS) and Associate Professor at the University of Louvain-la-Neuve, Belgium.

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To Jean-Pierre Dupuy, long-time inspiration and intellectual role model, in debt and respect.

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Foreword

David Colander

In the 1800s the study of what is now called “economics” was called the study of “political economy.” The term “economics” was reserved for the study of the pure science of economics, which, at the time, was primarily a deductive exercise. That changed in the early 1900s, with the publication of Alfred Marshall’s *Principles of Economics*. In it, Marshall chose to explicitly call his field of study “economics” rather than “political economy.” The change stuck, and thereafter the term “economics” has been used to describe all aspects of the field of economics, not just the pure science of economics, as it did earlier.

Although Marshall changed the name of the field, he did not change its content; what he did under the name economics was essentially political economy, not what Classical economists called the science of economics, or positive economics. Marshall’s work was applied, and its foundations were to be found in moral philosophy; he incorporated value judgments into the tools that he developed, but felt that they were the value judgments of the society he lived in. Marshallian economics was designed to be relevant to policy.

Arthur C. Pigou carried on the Marshallian tradition at Cambridge, and in *The Economics of Welfare*, he developed tools and concepts that he felt would help economists carry on their craft—suggesting how to improve society, and providing guidance in government’s interface with the economy. Pigou recognized that the economics he was doing was not pure science, but rather a combination of what he felt were socially accepted goals and economic reasoning. To differentiate his approach from the science of economics, he called his economics “realistic economics” or “fruit-bearing economics” which he contrasted with the pure science of economics or “light-bearing economics.”

The Marshallian/Pigovian tradition did not last. During the 1920s and 1930s, another tradition in economics was gaining a foothold in England—the Walrasian general equilibrium tradition—and, beginning in the 1920s, in serious theoretical work, the Walrasian approach displaced the Marshallian approach. Whereas the Marshallian tradition leaned toward the applied side of economics (political economy), the Walrasian tradition leaned toward the pure-science side of economics. The acceptance of the Walrasian approach

led to an increased use of mathematics in economics, and a greater emphasis on specifying and understanding the complicated inter-relationships among markets, even if that understanding came at a cost of applicability. As the Walrasian tradition became dominant, and the political-economy branch of economics withered away, the field of economics became more precise in its conclusions, but less directly applicable to policy. Thus, it is a delight to see books like Christian's bringing back important political-economy questions into the economics conversation.

Christian's work highlights an essential need in political economy—the need for a pluralist institutional structure in which there is competition for ideas. Since individuals holding specific views will naturally think that they are right, such pluralism does not come naturally—whichever group gets power within the profession will try to restructure institutions to let its views dominate. In the science of economics, the commitment to empirical verification places a limit on such power-grabs, but in the more ambiguous areas of political economy, where argumentation and appeals to reason and educated common sense, not empirical tests, must reign, there is no limit, and a well-functioning profession has to be structured in such a way that competition of ideas is embraced. All too often that hasn't happened. What's especially nice about Christian's book is that it goes beyond the standard heterodox/orthodox divide and, drawing on a wide range of literature, makes the argument that a truly self-consistent economics has to be pluralistic.

Developing a methodology for complex Political Economy

I first met Christian when he wrote me and asked me to sit in on the outside committee for his Habilitation, a type of post-PhD dissertation in which a researcher makes a contribution to his field that is formally defended to an outside committee. I accepted because, upon reading a short summary of his proposed Habilitation, it was clear that Christian's interests paralleled mine, and what he had to say was interesting. When I actually received and read the entire Habilitation, I discovered what Christian already knew when he first wrote me—that we were both struggling with the same issues, which can be summarized as searching for the moral-philosophy foundations for the study of the political economy of a technically complex economy. Although we were approaching the issues from different perspectives, it was surprising to me how similar the questions we raised were.

My work was concentrated on (1) how the field of economics was changing, and how those changes could be informed by, and better understood through, knowledge of its historical evolution, and (2) how the new work in complexity science was offering new approaches to formerly intractable analytic problems. I was arguing that while the complexity movement in economics is still in its infancy, it had already generated numerous interesting developments, such as behavioral economics, experimental economics, neuroeconomics, and econophysics, and that these developments were

changing the face of economics. But I also argued that the changing face had a path dependency to it; because most of modern economists' training is highly technical, and included little training in economic literature and almost no training in moral philosophy, the complexity work had concentrated on the pure science of economics, and, to my knowledge, other than for a very small literature of which my work was a part, had shied away from discussing the policy implications of complexity, the study of which belonged in political economy, not in economic science.

I felt that even though the technical challenges of complexity theory were enormous, and the work was highly mathematical, it was necessary to simultaneously try to study the broader foundations and implications of picturing the economy as a complex system. I organized conferences on the history of complexity in economics, complexity and the teaching of economics, and complexity and economic policy. At the history conference, the general feeling was that the primary economist who had seriously struggled with these issues earlier was Friedrich Hayek. But many of us also felt that Hayek's work put too much of a libertarian bent to the policy implications of complexity theory. In our view an appropriate moral-philosophical foundation of complexity economics should have no ideological bent at all: it should just be a philosophically neutral method of looking at a complex world.

Despite my work being outside the normal economists' interests, compared with Christian's it was much more accessible to mainstream economists because it was based in economics. Christian's work was much more philosophical; it tied developments in complexity studies with the recent developments into the Marxian, Frankfurt School, as exemplified in the work of Max Horkheimer. Christian's work went beyond the interests of the majority of economists in the US who had little or no knowledge of philosophical foundations of economics, let alone of Marxian philosophical foundations. Economists of my vintage (i.e., educated in the 1960s and 70s) had, at least, been introduced to the Frankfurt School, since such issues were all the rage back then. But I had moved far away from it, as the postmodern movement replaced a far too radical and socially destructive position for my tastes. Thus, reading Christian's work meant returning to a literature that I had read decades ago, and reintroducing myself to ideas that had been pushed to the far corner of my aging mind.

What I find especially fascinating about Christian's approach is the way in which he blends the Hayekian tradition with the Frankfurt School tradition, showing that both, in their own way, are struggling with the same issue—the moral-philosophical foundations of a complex economy. By blending Horkheimer with Hayek, he provides a way of eliminating the libertarian bias of Hayek and the radical bias of Horkheimer. By mixing two extremes one arrives at a relatively neutral moral-philosophic position that can usefully be integrated into the complexity foundation of economics. Christian's blending of Hayek and Horkheimer is novel, and in my view, is a real contribution to the literature. I salute him.

What one draws out from the blending depends on one's temperament and training. What I draw out is agnosticism, with little call for action following directly from any academic's work. I hold this position not because I believe that no action is needed, but simply because I don't believe we academics understand a whole lot about the political and practical pressures for change. Positive change in a complex system cannot be expected to come about from academics who lack day-to-day experience in the institutional structure for which they are suggesting change, and experience with the institutional structures within which those changes must be made. In my view a deep knowledge in these institutional structures, which can only come from experience within them, is a necessary foundation for positive change. *Métis* trumps all theoretical analysis developed by cloistered academics.

This not to say that academics are meaningless. I think of them as catalysts for change, and I think of universities as incubators for ideas. But before an idea is translated into policy, it has to leave the incubator and be massaged and taken up by others with practical knowledge. This means that academics, in their role as theorists, have to shy away from definitive pronouncements (even this one), no matter how strongly they believe them, or how tightly they follow from their reasoning. Ultimately, reason does not provide final answers.

I shy away from giving too much credence to academic critical thought for the same reason that I shy away from the Frankfurt School's views—not because I deny the need for critical thought, but because of my belief that complex systems are not logically designed and cannot be fully understood through critical thought. The only thing we truly know about complex systems of which we are a part is that they are working at least for now. They have evolved and have been gerrymandered into working in ways that I do not believe we can fathom, and thus changing them from theoretical design, although often necessary, is perilous. While I agree that planning and change are both necessary and possible, and take a more activist role for planners and for theorists than do Hayek and his supporters, I see the actual changes coming from non-academics who are directly involved in the system, and not from academic theorists. The theorist's role is to provide ideas. Thus, as a theorist, I shy away from all pronouncements about how things should be done, or how the system should operate.

The above arguments mean that I cannot accept Christian's claim that "there can be no acceptable alternative to Critical Political Economy and its pluralism" and that "no pluralism at all should be allowed as to what regards our views of a genuinely liberating economy." These claims, in my view, give too much weight to theory (specifically his theory), and suggest that the claims are not subject to debate. That goes against my beliefs and sensibilities. It suggests that academics, not the system, can make definitive pronouncements about how the competition of ideas should be conducted.

I think we both agree that pluralism and competition of ideas is a good thing. Who doesn't? But I see a much messier situation in deciding what is

acceptable. Christian, I think, sees far too little competition of ideas in the current institutional structure of the economics profession. I do too, but I am not willing to state that it definitely is too little. There's a lot of freedom of ideas out there, and I can think of many systems that would be far worse than what we have. My hope is for workable competition of ideas, where workable is to be determined by the issues at hand, not by pronouncement. I also believe we as academics are not the ones to decide on the degree of freedom society gives to academics. We would always prefer more. Society supports academics, and with that support comes the right, and need, to guide academics.

Academics themselves are part of a complex system and, as such, need checks imposed on them by the society that funds them. If, after hearing an academic's arguments for the competition of ideas, society chooses to limit that competition, as it has generally done, it may well mean that sustainable complex systems must limit the degree of critical thought that their institutions are held up to. Complex systems, looked at from a critical perspective, will always fail to meet expectations. It is possible that continually pointing out those failures can undermine the sustainability of a complex system. It may be for this reason that real-world sustainable complex systems have always developed protection mechanisms that either prevent too much critical thinking, or that push the serious critical thinking outside of the mainstream of the system—into such places as academic environments. So I am open to the possibility that critical thought itself must be reflexive and accept that critical thought is limited.

I support more pluralism than we have, not because of theory but because of my read of history. Successful societies have always been societies that have allowed some degree of critical thinking and pluralism. It makes the system adaptable. Thus, it may be that just as too much critical thought can undermine the stability of a complex system, so too can too little critical thinking undermine a society's ability to adapt to changing circumstances. Thus, I suspect that there is a continual tension between the two needs that reason cannot ultimately resolve. They must be resolved in real time. Societies will always be struggling with finding which right amount of openness and critical thinking to allow. These concerns lead me to question Christian's hope for a "self-criticizing system." It may well be that all we can hope for is a system that allows a reasonable amount of self-criticism, while simultaneously protecting itself from the ever-threatening chaos, the verge of which a complex system is always on.

From my read of history, one of the strengths of Western democracy has been its ability to allow a reasonable amount of critical thinking to take place, while at the same time keeping the system together, where "reasonable" is determined by historical comparison to other societies that have existed. In my view the National Science Foundation of Belgium's support of Christian's research is an example of precisely the type of openness that Western democracies often exhibit, and always should exhibit.

One of the reasons that I shy away from criticizing our society for limiting openness is my experience with "critical thinking" being put into practice in

the 1960s in the US. There, I saw firsthand the internal workings of radicals' calls for change in decision processes in the hope of restructuring all society. Based on that experience I became rather cynical about academics' ability to effect positive change, and came to believe that, in politics, the maxim that the best is often the enemy of the good, is a useful one to follow. So, in my view, any call for critical thought and freedom, calls that I generally support, must be accompanied by a warning about the difficulty and the costs of change. Critical thought has costs as well as benefits.

Economists must be inside the economists' model

Although there are major differences between my and Christian's views about the implication of the analysis for policy, these differences should not be overstated; we are talking the same language, and our views on how to conceptualize the problems of developing a political economy for a complex system are quite compatible. For example, we both agree that currently a problem of economic policy analysis is that that analysis is carried out as if economists are outside the model. Somehow economists have assumed that they have a vantage point that lets them see everything—perhaps not with twenty-twenty clarity, but nonetheless with a perspective above the fray. In a complex economy, being above the fray is impossible, which means that the economist must be an agent in the model that he is modeling.

This simple idea that economists must be in their own model means that their vantage point for policy analysis cannot be an outside perspective, as it is in the standard neoclassical model. That outside perspective assumes understanding that someone in the system cannot have. In terms of modeling, this means that economists must be agents in the model that they are modeling. It follows that you cannot assume that economists are more knowing than other agents; or if they are more knowing, the model must specify how they became that way, and specifically model economists as influencing the workings of the model. Moreover, in a complex model, we both agree that the interesting elements are likely to be in the interaction of agents, not in the decisions of an all-knowing agent, which means that the representative-agent models so prevalent in modern macro are not going to be helpful. These two propositions lead to the conclusion that if one accepts the complexity vision as the appropriate vision of the economy, much of modern macroeconomic theory has little relevance.

Interestingly, this sense of equal knowledge of the economist and the agent played a key role in the rational expectations revolution that took place in macro over the last couple of decades. But the resolution that rational expectations researchers reached—to assume that the world is essentially populated by all-knowing, economist-like agents who also know the true model—is precisely the opposite one that Christian and I believe is appropriate for a complex system—that neither the economists or the agents in the model know the true model.

The reason that rational-expectations researchers chose the assumptions they did was that they were the more analytically tractable assumptions. These researchers were following the economic science approach where rigor and precision trumps all else. Christian's and my approach follows more the political-economy tradition that I discussed above. That approach, which in other work I have called the Post-Walrasian approach, holds that fully modeling a complex economy from micro-foundations is an analytically intractable task. To model a complex economy requires new methods, and one of those important new methods is agent-based modeling. In agent-based modeling one essentially studies the economy by creating a virtual economy, which is then used to simulate policies. These simulations are used to guide policy-makers. No equilibrium needs to be imposed on the system; all one needs to do is specify the characteristics of the agents and the environment they operate in.

In agent-based modeling the question of how to model an economy reduces to questions of what characteristics we endow the agents in our agent-based model with, and what we specify for the environment we put them in. It is in answering these questions where Christian has, I believe, added to the debate. In my post-Walrasian work, I have argued that within a complexity approach, it made sense to model agents who are locally, but not globally, rational. That is still true, but almost all previous models have limited agents' interests to local areas that they can influence. For example, in Rob Axtell's "Sugarscape" environment, agents search for sugar within their immediate environment. Christian's analysis points out that the local-knowledge approach is incomplete. Since economists are inside the model, and economists are worried about the overall nature of the system, then we must model agents as worrying about that as well. One way to do this is to make ideology part of the characterization of agents.

I haven't fully thought through the implications of placing economists inside the model. But in thinking about those implications I find Christian's arguments persuasive and although I am not fully convinced by all of them, I can commend them to all serious economists who are interested in complexity and policy. I suspect that the next time Christian and I meet we will debate whether "Critical Political Economy" is the end of economic ontology, as he argues it is, or simply a stage in a never-ending process of understanding, as I tend to see it. But where we both agree is that it is important that economists think about these issues. I wish you all a good read; it is a read that will be well rewarded.

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August, 2007

1 Introduction

Think again!

What would you think if, upon opening your morning newspaper, you found a list of axioms that, unbeknownst to you and without any public consultation that you were aware of, a group of well-intentioned economists had put together as the “solution concept” for—say—the distribution of incomes or the allocation of public subsidies? What would you think if these axioms were affirmed from the top down as “scientific” and there was no visible room for you or your fellow citizens to influence their content in the future?

If you were an economic agent such as those who inhabit most of today’s economic theories, you wouldn’t think anything. You wouldn’t react at all. In fact, you wouldn’t be equipped, cognitively speaking, to make sense of my questions. Why? Because you yourself would be a fabrication of those same, well-intentioned economists—and they would have made you up in such a way that you couldn’t question *their* authority. Does the Golem question his maker’s decisions as to how he was fabricated? Does an automaton, or a computer program, question the features its programmer endowed it with? Of course not, because that’s not part of why it was fabricated and programmed in the first place. Automata and, more generally, artificially intelligent “things” don’t have the wiring required for them to look up, to stare into their maker’s eyes and to ask, “Why did you make me like that? I want to be different. I want to be free.” Well, the agents that inhabit today’s economic theories are like that—they may, in more recent and cutting-edge advances, be programmed to have “emotions,” “beliefs,” and other seemingly autonomous features, but nevertheless their *function inside “science”* is to be sophisticated idiots. So not only would a mainstream economic agent not react to my above scenario, he probably wouldn’t even read the newspaper unless the economist who fabricated him wanted to know how the “market for information” works or how to minimize the overall utilization of paper paste. None of these issues, however, can be raised by the agent himself. The economist raises them herself and then constructs the agents she needs to model the corresponding mechanisms and to combine her various axioms into a “solution.”

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Now of course, neither you nor I are *actually* such idiotic, pre-programmed, and adaptive agents. We're reflexive human agents and we sort of know it. But we have also—let's assume—studied economics for several years. As a result, we're *economics-infused citizens* and we might unthinkingly expect the economy “out there” to work roughly in the way our instructors with their sophisticated automata have presented it to us. It's not that these instructors want *us* to *be* automata in our real lives—in fact, they're not automata either. I could test this by going to my next economics class and asking my professor why she keeps presenting models of sophisticated automata. She won't be happy about my question, nine chances out of ten. In the best case, she'll feel she has to find justifications for nevertheless using “simplified” and “streamlined” or “stylized” models where agents aren't reflexive and self-reflexive. In the worst case, she'll just politely chide me for asking “unscientific” questions and for not understanding that the agents in her models *are in fact* free and rational. In fact, she'd be chiding me for my own good, as part of my “economic education.” Her role as an instructor, after all, is to make me “economically literate,” right? Consequently, next time I'll hesitate to ask again, and eventually I and most people like me will end up settling into a vision of the economy where *agents are “rational” without being able to have a critical judgment about the world in which they exercise that alleged “rationality.”* And having gradually persuaded myself, I might become a bit more like those “rational” agents: calm and collected, just a bit cynical, and basically uncritical. (My only way of not becoming like that would be to become an economist myself. We'll get to that in a minute.)

If I've become such a person, my first reaction to the above scenario will probably be something like this: “Well, I wouldn't particularly mind these economists' axioms coming from the top down, since this is the way things are already happening, anyway. We're citizens, not economists, right?” Suppose now that, unlike me, you've resisted the “conversion” into a mainstream economic agent. You'd then be pretty worried about my detached reply. Your advice to me would surely be: “*Think again.* Reflect on that reaction, probe it to understand *why* it is your reaction. Ask yourself if as a first reaction it can be stabilized into a firm *conviction* about how the economy we live in ought to work. During your reflection, talk to me, to others, read, write up arguments and tear them up to write up new ones, and so on. You might end up having your own list of axioms as well as a pretty elaborate theory about the kind of economy these axioms ought to be translated into, and about how the required changes could be pushed for without hurting or killing those people who don't immediately agree with you.” That's probably more or less what you'd tell me.

But suppose I've been chided often enough by my instructors so that I ended up persuading myself that their models are an acceptable “scientific” representation of how the economy works. If that's the case, then you'll find me shrugging and saying, “Oh come on, that's all just too much work and

brain-wrangling. That's the economists' job, isn't it? Haven't they told us that all through our studies? I have other things to do with my life, like making good profit in my business and trying to get my children into a good school so they'll have good job market opportunities later." You'll feel I'm not showing a great degree of cognitive empowerment by reacting in that way. Sure, doing those things is important as long as the economy works the way it does, but do we need to just accept the way it works? Shouldn't we have asked our economics instructors to give us tools that we could use to criticize the economy in which we're currently immersed? Isn't *critical acceptance* of the world more important than uncritical, passive acceptance?

So you'll keep on asking me to reflect more, to become more reflexive and self-reflexive. "How," you'll inquire, "can the things you want to do with your life be completely disconnected from the kind of economy in which you do them? Is it because in the end you really think there is *nothing wrong* with the economy, so that you can pursue your goals in it unreflexively? Or is it because some customs, habits, or sanctions evolved and established within the economy keep you from reflecting?" At that point, I might pause and start to think. But equally likely, your insistent interrogations might remind me of my own past queries, which were brushed aside by my instructors. So I might get a bit impatient and snap back, "Look, I'm *telling* you, I don't *want* to reflect, I want to *live*. The economy demands so much of me already that I can't see how adding these issues you're raising now will make my life better, or help me to succeed. Sorry."

At that point, you'll probably just leave me alone and look around for someone else to reflect with. And if everyone you meet reacts in the same way as me, you'll consider becoming a Taoist or a Stoic practitioner, trying to live out your own axioms of a better economy without anyone else cooperating, accepting the current capitalist market economy but trying to improve the quality of your participation in it, accepting commercial culture but trying to "de-commercialize" your own tastes if you can, and so on. Who knows, maybe you'll find out that I was right after all, or maybe after having accumulated my own experiences of unreflexively "doing things," I'll remember our conversation and call you up again.

This kind of interactive dynamics is what this book is about. I want to argue that one important way in which today's economics can be made more fruitful is by breaking away from models in which the axioms used to assess the "economic environment" are supplied from the top down by an external economist. Today's economics can be made more relevant by attempting to model the interacting agents themselves (one of whom might be the economist, now no longer external) as harboring *critically reflexive knowledge* about the economy in which they are interacting and as using that knowledge to act rationally toward furthering a better economy. So the basic position I defend here is that, eventually, I'll call you up again and say, "You were right, after all this time running around and opportunistically trying to make the

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best out of the economy as it is, I know I need to take a critical step back and reflect. I've experienced successes and failures, but through these experiences I've come to question what it means to be free and to be genuinely human. I've spent my time adapting, thinking about how to use the system without questioning it, and I've lost track of how the economy could become a better place. Do you know of theories that could help me to remedy this?" This book seeks to offer a framework in which such questions make sense.

This is a book about the conditions under which economics, given the way it has been practiced for the past half-century and is evolving today, could come to be viewed as an *emancipatory discipline*. More precisely, it argues that in a liberating economy, economics has to be viewed first and foremost as a *critical and political discipline* aimed at steering an economy's course toward better modes of interaction and steering individual agents' course toward better ways of being rational actors. This requires two main things. On the one hand, economic phenomena should be freely emerging, unplanned, and non-fully controllable. On the other hand, economic agents should be freely thinking, reflecting, and non-fully mechanical. If either of these two things fails to hold, the economy in question is not genuinely liberating. In a liberating economy, therefore, reality should be a set of *complex, emergent phenomena* constantly arising from interactions within structures of emergence lucidly adopted by *critically reflexive agents*. How to build an economic science that would cater to such a liberating economy is what this book is about.

Economics in a liberating economy

To designate this specific brand of economics, I offer the expression "Critical Political Economy." It is not meant to be a rallying call for either a new orthodoxy or a united heterodoxy. In fact, as will become clear along the way, Critical Political Economy views economics as being, *in a genuinely liberating economy*, beyond the traditional orthodoxy/heterodoxy split. In a nutshell, this book seeks to convey the idea that a *genuinely "liberated" economics*—which requires a genuinely liberating economy and especially a population of genuinely reflexive and critical economic agents—is a "*poly-doxo*." By this I mean a brand of economics which recognizes its essential nature as a socially and politically embedded science and accepts within itself a non-arbitrary plurality of mutually irreducible theoretical views of the economy. Each of these views would, in a genuinely liberating economy, be offering a critical theorization of what would be a better way to be a rational individual agent and better ways of interacting in a rational economy.

Critical Political Economy is, therefore, not itself an alternative economic worldview. It is not one more heterodox theory or, for that matter, one more version of a revised orthodox approach. Critical Political Economy aims at providing the conceptual toolbox that would allow any student, any citizen, any economist, to fight off misguided attempts at consolidating the incumbent orthodoxy or at replacing it with a new, formerly heterodox one. Critical Political Economy is a way of thinking about economics as a socially embedded cognitive practice, so that *any* pretense at orthodoxy, i.e., at “right thinking” about the economy, will be unmasked as one more partial program of political and anthropological construction. In other words, within Critical Political Economy, any economic worldview and any economic model pertaining to it is considered to be a critical theory, that is, a *critically descriptive proposal for a better economy*, rather than as a positively descriptive picture of the actual economy. This implies that in a genuinely liberating economy, methodological and theoretical pluralism in economics would be beyond any claim to orthodoxy—economists would be laboring freely within a *post-orthodox pluralism*.

In this perspective, economics appears more as a process guided by a dynamic, historical, and political search for a better social world, than as a set of methods imposed by static, ahistorical and apolitical criteria of scientificity. In fact, as it will turn out, part of what makes an economic theory “scientific” will be its widespread appeal as an individual tool for political action—this is what will be called an economic theory’s *reflexive appeal* for economic agents currently engaged in an economic reality which they *critically—rather than just passively or adaptively—accept*. As a result, economics in a liberating economy is a path-dependent process along which what counts as a legitimate scientific critique of current economic arrangements varies from period to period.

Path-dependency is in staunch opposition to postmodern arbitrariness or “anything goes.” In Critical Political Economy, legitimate scientific criticism will be seen to be irreducibly plural (contrary, for example, to what older Marxist dogmatists believed, but also contrary to what today’s orthodox economists postulate), but it will be a circumscribed plurality: in a liberating economy composed of cognitively empowered individuals, each period of history is characterized by what I will call an *Esprit Critique*, i.e., a “normative and reflexive atmosphere” providing a set of path-dependent criteria that delimit the range within which emerging worldviews can be regarded as acceptable. This does not preclude the possibility that, at some epochs, racist or sexist economic worldviews might be viewed as legitimate; they have been in some past periods (see, for example, Gibson-Graham 1996; Levy 2001; Peart and Levy 2005), and Critical Political Economy cannot be utilized to deny this historical fact. However, neither can it be used to argue that racist or sexist economics might be alright at *any* epoch—such as the beginning of the twenty-first century—since our *present* normative and reflexive atmosphere offers us criteria to reject such anti-progressive approaches.

The idea of Critical Political Economy

In a sense, Critical Political Economy is a way of pushing mainstream economics to its own inherent limits, so that it eventually self-subverts. Indeed, as this book purports to show, extending today's orthodox mainstream into complex-process economics will eventually force it to recognize the *constitutive plurality* of reflexive and critical economic cognition, provided one very crucial consistency condition is satisfied: complexity economists should accept that in any economy, economists and non-economists interact in the attempt to grasp the reality of which they are *all* part.

This consistency condition seems to me to be the most basic one that should be imposed in order for an economy to qualify as liberating. It means that in a liberating economy, all citizens exercise *critical rationality* when leading their economic lives, and in that endeavor citizens who are not economists obviously need the assistance of citizens who are economists. Since, however, the individual's impetus to form and modify her critical theory of the economy comes from her lived experiences as a member of the economy—her failures and her successes as an economic agent along the process of unfolding of ongoing economic reality—there is every reason to think that critical rationality is inherently situated or, as some would put it, “positionally objective” (Sen 1993a). Each of us views and rationalizes the world given the experiences we have had, and our critical stance toward the world stems from those experiences. While irreducible to subjectivity, objectivity possesses an inescapably subjective component, so that all views of the world are part of the world. In particular, all views of the economy are part of the ongoing economic process.

Therefore, in a liberating economy, each economic worldview (as well as the models that come along with it) must be aware of the existence of possibly opposed, but equally objective, worldviews. One of the implications of this is that, *if it aims at modeling a liberating economy and not a freedom-restricting, alienating one*, mainstream complexity economics has to recognize that agents can carry critical theories which may be mutually irreconcilable while, at the same time, neither critical theory can be empirically falsified in the Popperian sense. In that way, by combining orthodox economics in one of its state-of-the-art forms—complexity economics—with the ideal of a cognitively empowering economy, we obtain a seeming paradox: an orthodox, and hence non-pluralistic, conception of how a *cognitively constrained* economy works has to yield to a post-orthodox, and hence pluralistic, conception of how a *cognitively empowering* economy works. By “cognitively constrained,” I mean an economy which, by assumption, operates with all agents carrying the same, identical critical conception of a better economy—that is, a unanimous economy without disagreements between agents about how to stand critically toward actual economic reality. The behavioral and societal assumptions of orthodox complexity economics will therefore turn out to be *a very particular limit*

case of a more general framework where agents interact so as to settle disputes and disagreements on how to criticize the operation of the economy.

The upshot of Critical Political Economy is, thus, that any monistic worldview that postulates—be it only implicitly, as is most often the case—all agents to be agreeing on the fundamentals of how an economy works and ought to work, and on how to make the economy work better, could be viewed in one of two ways. Either the worldview in question (regardless, now, of whether it is “orthodox” or “heterodox”) has been ideologically forced upon an indoctrinated population, or it has been freely adopted by each individual and it just so happens that everyone agrees. So, for instance, a Walrasian or a Hayekian worldview, or a Marxist one for that matter, could *all* be seen either as a totalitarian blueprint or as a unanimously agreed-to conception, depending on how one views the place of critical rationality in the agents’ cognitive deliberation.

Ultimately, then, in Critical Political Economy any self-consistent economic worldview must be seen not as an attempt to describe a world already in existence, but as a political and anthropological blueprint for a better economy and a better humanity, meant to motivate agents to act within an ever elusive, ongoing economic reality which no worldview can ever grasp in full. In a genuinely liberating economy, so this book will argue, economics can only be a political discipline—where the word “political” is taken in its most noble sense of an effort to construct better ways of being human and better ways of interacting socially. In a liberating economy, any economic worldview is a critically descriptive program within an indescribable reality. Thus, no economic paradigm, whatever its underlying view of how the world works and how individuals interact within that world, can ever claim to be “the” scientific account required for any valid utterance about the economy. All paradigms can certainly, and should, aim at being scientific—but in this book the term “scientific” will be stripped of much of its positivistic undertones. We will see that to be truly scientific, any paradigm (with its methodology, hence its social ontology) has to endeavor to offer a critical description of the economy—that is, a description that can be usefully taken on board by certain agents in order to act toward a better economy. Which agents? That will depend on the paradigm’s “situatedness” and its ability to grasp the critical-emancipatory aspirations of a certain category of the population.

Let me emphasize again that while post-orthodox pluralism can be written in shorthand as “POP,” there is *absolutely* no “populism” implied in my approach. Critical Political Economy aims at grasping the broader framework within which various scientific—i.e., critically descriptive—economic theories can coexist. Such a coexistence is, indeed, the hallmark of a liberating economy, not of a populist dictatorship. The role of economists as scientists will not be underplayed, much less denigrated. Rather, it will be shown by Critical Political Economy that, in a liberating economy, each economist has to view herself as providing critically rational citizens with

tools for bottom-up political action, rather than as providing instrumentally rational elites with tools for top-down political management. If this is so, then *the very plurality of (scientific, critically descriptive) paradigms within economics will be a sign of the ability of economics to be an emancipatory social science.* Critical Political Economy as constructed in this book offers a framework in which to make sense of this normative demand for pluralism in contemporary economics.

A self-undermining orthodoxy

As such, this book does not argue in favor of one or the other paradigm. It is, to belabor the point, neither “orthodox” nor “heterodox.” It attempts to establish the conditions under which a *fruitful* antagonism between various paradigms can occur. These conditions have to do with the realization that in a liberating economy, only those paradigms that can be shown to be critical descriptions of the economy can be taken to be truly “scientific.” To qualify as a critical description of the economy, a theory has to satisfy certain conditions that will take up quite a significant portion of the overall development in the book.

To draw up those conditions, I shall be making quite extensive use of the thought of two apparently opposed and irreconcilable thinkers, namely Friedrich von Hayek and Max Horkheimer. The former was one of the tenors of the Vienna School, the latter a co-founder of the Frankfurt School. Since contemporary complexity economics stems mainly from the Santa Fe School, this book can be taken as a rough travel guide for moving around fruitfully between Vienna, Frankfurt, and Santa Fe. More seriously, the conditions under which a theoretical paradigm can qualify as a critical description (and hence claim to be scientific in a liberating economy) have to do with (a) Horkheimer’s idea that economists ought to be “emancipatory theorists” and offer citizens cognitive resources for active social criticism, (b) Hayek’s idea that no cognitive framework can claim to be an exhaustive empirical description of how the world works, so that no one ever acts on “true” knowledge, and (c) the idea held by many complexity economists (and shared by Hayek as their forerunner) that cognition itself is a socially constructed process and that social data emerge as an uncontrollable result of individual interactions. Paradigms which, in one way or another, take into account those three features may qualify as scientific in a liberating economy. This means that *the very operation of a liberating economy will be seen to be a process of bottom-up criticism of the economy itself*, implying that a liberating economy is essentially a “self-criticizing” system.

The idea behind post-orthodox pluralism is to provide a tool to submit any economic paradigm to criticism. Although my approach is not anti-orthodox by principle, I can nevertheless not avoid the fact that, put through the wringer of Critical Political Economy, the mainstream orthodoxy

that currently dominates the profession comes out in rather bad shape. Mainstream economics, as will be argued at some length here, is structured in such a way that it ends up portraying any economic system it models—whether it be a capitalist market economy or a socialist cooperative economy—as a non-self-criticizing system. This is due to the mainstream’s most basic assumptions, which themselves are rooted in an atomistic social ontology that must rely, even in the more sophisticated “complexity” versions of the mainstream, on a *homo economicus* devoid of critical rationality. Whether the mainstream could, as a result of taking into account the objections coming from Critical Political Economy, move in the direction of *homo criticus* as called for by a Frankfurt School approach will be one of the principal topics to be dealt with throughout the book.

As things stand at present, however, it will become clear that neoclassical economics and its mainstream followers cannot fit into a liberating economy, especially given that economics is a subject taught to citizens. One cannot use the worldview and conceptual tools of the mainstream of economics to model a liberating economy, so that when this worldview and these tools are being taught in our actual societies under the monistic heading of “economics,” they cannot encourage critically rational citizenship. Rather, as I will be arguing, mainstream economists—even those who purport to be doing “normative” economics—more or less unconsciously endorse a paternalistic, top-down view of what an economist is supposed to do in the economy. Of course, as the actual history of mainstream economics demonstrates, a paradigm peopled with uncritical, non-reflexive agents *can* be (and is being) taught. What this book argues, however, is that it *should not* be taught as if it were modeling a genuinely liberating, self-criticizing economic system. The only alternative, then, is to teach mainstream economics as a specific political program, subject to the counterfactual assumption that all agents in the models have reflected on the nature of rationality and the economy and have agreed unanimously to become the kinds of human agents in the kind of economy required for mainstream economics to be a *critically descriptive* body of theory.

The question that arises, then, is whether the features of human rationality and of the economy called for by the structure of mainstream economics are real possibilities for human beings. The answer given in this book is “no.” The reason is that arguably, no rational person would voluntarily adopt the mainstream economic paradigm as her critical tool for orienting her desires and aspirations toward a better economy. Ultimately, then, one may ask on what grounds mainstream economics is being taught to economics students. The book will explore some of the reasons and offer some alternative ways of fitting mainstream economics into a post-orthodox, pluralistic conception of the teaching of economics.

In this sense, what is being offered here is an attempt to ground, to offer foundations for, certain already circulating arguments in favor of methodological pluralism in economics—foundations that can be seen to flow from a

consistent application of the ontology of social complexity contained in today's cutting-edge mainstream economics. To repeat, the mainstream is bound to self-subvert if it asks itself how its own methods and tools can serve to model a genuinely liberating economy in which cognitive empowerment is a central aim of agents. The only real alternative is to view mainstream economics as a paradigm that *simply does not* promote a self-criticizing economic system—a paradigm that, instead, subscribes to a top-down, paternalistic or at least technocratic conception of social engineering. Although this recognition would go against the grain of what most mainstream economists believe they are teaching, at least it would have the merit of clarifying the “location” of mainstream economics within the overall, pluralistic landscape of economics in a liberating economy. The image would not be a very glorious one, of course, since it would put the mainstream and its assumptions of “rationality” and “optimality” in the same league as most other, possibly more heterodox, paradigms which also adopt a largely top-down, even anti-critical, attitude toward governance.

The new aims of political economy

Mainstream voices may be heard to rise against this claim. Is there not a significant and rapidly developing strand of orthodox economics called the “new political economy”? There is, of course, but my criticism does not bear on intended or on actual changes within the mainstream paradigm. It bears on the question of whether mainstream economics—or, for that matter, any heterodox paradigm, too—can be argued to be *self-consistent*.

Thus, what I mean by the expression “political economy” here is something different. I do not mean, first of all, that we ought to return to old-style political economy—presuming it even had a unity other than that given it *ex post* by historians of economic thought. We are no longer in a mid- or end-of nineteenth-century society. Democracy has advanced, and so has the overall level of education in the population. Neither do I mean, second, that we should remain content with what the mainstream nowadays tries to sell as so-called “political economics.” This is essentially because, to my mind, *mainstream theory is itself only a particular strand* within what ought to be a much broader conception of our societies’ attempts to address and reflect on the question of how economic institutions should evolve if we are to become freer people. From the classical economists on to today, political economy has either been marginalized or, when occasionally resurrected by one group of scholars or another, has consistently been designed to address the problems internal to *capitalist indirect democracy*. You will find in mainstream theory no *self-consistent* approach to, say, non-capitalist direct democracy.

The expression “self-consistent” is very important here. As will be argued early in the book, a self-consistent theory would be one in which the agents’ internal—cognitive and reflexive—make-up allows them to subjectively

support the objective reality represented by the theory. Mainstream economics is constitutively unable to self-consistently model non-capitalist, differently democratic economies. This is not because it is an explicit, deliberate defense of capitalist democracy. Rather, it is because it is just as unable to model capitalist indirect democracies as it is unable to model non-capitalist and/or direct democracies: the agents in mainstream theory simply do not have the mental equipment to think about what social structure they aspire to. This includes the bureaucrats and politicians who, in “political economics” models, pursue single-minded instrumental interests (the desire for power and prestige, and so on) for the fulfillment of which political institutions happen to be a good vector. Thus, by assumption, the only agent who *might still have* the mental equipment to reflect on the good economy is the mainstream economist herself. But since she does not model herself as part of the economy she is modeling, she *de facto* spins a solitary narrative about social objectives, desirable optimality, and so on, which none of the agents in her model—and hence, in her perception, none of the agents in reality—is able to comprehend.

If any agent other than the economist were able to entertain vistas about the good or the better economy and about what to do to attain it, this agent should either be pulled out of the model composed of idiotic maximizers¹ or be included in the model—with the inevitable consequence that the economist must include herself in her own theory, for she has no reason to be the only agent capable of socially minded reflection who remains outside of the economic process she is modeling. But then,

- Either the social reality represented by this theory must contain other potentially non-mainstream economists. The implication is that a positive mainstream model containing potentially non-mainstream agents would be underspecified along crucial dimensions—namely, the dimension of *inter-agent reflection and debate* about whether the mainstream axioms and norms are acceptable.
- Or this theory has to postulate—counterfactually—that there are no “dissenting” economists and that all agents in the model espouse the economist’s representation of them. The implication is that the model is then not a positive description of anything (except possibly of an intellectually totalitarian society), but *a political program* that will make sense to, and motivate, only those who agree with its normative premises.

To my mind, political economy ought to be a style of economic theorizing that takes this dilemma seriously. Political economy is a way of looking at economic problems and issues—including the problem of which economic institutions we want, and which political institutions we want in order to support them—without naively presupposing that any single theoretical paradigm can be imposed as the *required medium of public debate*.

If and whenever it takes place, public debate occurs within a real-time social and political process which outruns any theoretical attempt to pin it down and grasp it in full. Social reality—that is, the actual, ongoing process that is unfolding as I write and as you read—is forever ahead of social theory. In fact, most economists know this full well. Indeed, a frequent complaint of mainstream economists is that their work has too little impact on reality because it is not heeded by enough people, especially politicians. However, should not the fact that few, if any, public decision-makers—or citizens more generally, for that matter—listen to mainstream economists be, *at one point or other*, made part of those economists’ reflection on how the economy could be made to work better?

Note, again, that while this criticism hits mainstream economics badly and brings out some of its less palatable sides, it is not confined to the mainstream. Non-mainstream paradigms are likely to be similarly challenged when confronted with the requirements of genuine cognitive emancipation. Moreover, the criticism addressed here to mainstream economics is not predominantly political, but rather methodological.

The mainstream use of economic models

To put the criticism succinctly, *the extent to which agents are assumed to accept the kind of model economy in which they are made to interact is also the extent to which we, as “users” of the model—whether as fellow economists or as external readers—are asked to accept that kind of economy.* The difference is, of course, that whereas the agents inside the model are assumed to take the structure of the economy (along with its implicit values) as unquestioned data, we as agents outside the model are assumed by the modeler to take that same structure of the economy as a reflexively accepted normative ideal—if we did not, we could hardly be expected by the modeler to accept the premises of his work and hence whatever conclusion he deductively derives from them.

This means, then, that the way in which agents are constructed for modeling purposes is functional in the normative dialog constantly occurring between the modeler and his “clients”—students, colleagues, policy-makers, and so on—within a complex, elusive social reality. *Using any economic model and taking it as a relevant piece of knowledge means that you accept, at the moment of use, the vision of the social world that underlies even its most innocuous-looking assumptions.* This is inescapable. It would mean nothing at all to be using a model while rejecting the basic methodological and normative premises—explicit and implicit—that underlie its theoretical structure. Of course, the acceptance can be strategic. You may, for instance, want to understand how Smith, Hayek, or Debreu analyze the functioning of a market economy in order to sharpen your own criticism. Still, entering into contact with any economic theory entails a somewhat mysterious openness, a suspension of beliefs, and perhaps even a susceptibility, with

respect to the underlying premises. More often than not, this susceptibility will lie in a relationship of authority: You are exposed to the theory because you are a student facing a teacher, or because you are a decision-maker facing an expert. Clearly, the user of the models coming from the theory need not thereby be seen as helplessly exposed to unavoidable ideas and concepts. Neither students nor decision-makers are gullible unless teachers and experts take part in a concerted enterprise of intellectual terrorism—a stance that consists in intimating on your “clientele” that your methodological and normative premises are the only ones which can make for a “scientific” discussion or a “serious” understanding of the workings of the economy.

The users of a model may certainly, under certain conditions, disagree with the way in which reality has been represented and modeled. This is, of course, the whole point of Popperian falsificationism and the like: to find and defend criteria of what legitimate disagreement means when it comes to knowledge. But *are users of a model also allowed to disagree with the reality itself—that is, to disagree with having to go through the model of a reality or phenomenon of which they feel they disapprove?* At first sight, the answer may seem to be clearly negative. If you are the user of a theory, presumably you are using it for a reason; thus, why would you want to go against that reason by subsequently not agreeing with what the theory’s models represent (rather than merely with the *way* in which they represent it)?

Such an answer, however, assumes something which, to my mind, cannot be assumed, namely that each user of a theory is always and everywhere free not to use it. This is especially inappropriate in the case of economics students. More often than not, they are in a position where what is presented by the instructor is compulsory. For instance, they may have to study models of market economies whether or not they themselves are favorable to markets. They may have to study models of wage labor even if they themselves are favorable to cooperatives or to self-employment. In such cases, it may not be the particular way in which markets or capitalistic firms are modeled which they disapprove of (such as, for instance, the particular specification of the wage-bargaining function or the specific method used to analyze the workings of oligopolistic competition), but the fact that by teaching such models, the instructor is implicitly positing the structure of capitalism—wage labor, asymmetric bargaining power, competitive strategy, and so on—as a datum which neither the students in the classroom nor the agents in the model are free, at that moment, to object to. The same could be said of students who, perhaps, had misgivings about having to study exclusively Marxist economics in the former Soviet block.

At this point, a mainstream economist may reply as follows. (a) The agents in the model are constructed in such a way that, by assumption, they do not object to the rules of the games they are playing and to the reasons why they are playing these games and not others. This absence of reflexivity is a necessary premise for the model to be consistent. (b) However, the

students in the classroom need only submit to the assumptions of the theory and its models for the duration of the teaching. They can very well disagree with them completely. (c) What matters is that the instructor be in agreement with what she teaches and be prepared to defend it against criticism on the part of the students—or that, at least, she have a sufficient understanding of the model and its premises to teach it in an intellectually honest way even if she disagrees with it.

Does this seemingly clear vision not, however, contain a hidden catch? Indeed, notice that points (a) and (b) can be advanced together only if it is assumed that the agents in the model will never be on the same ontological level as the students, especially once the latter have left the classroom. But surely, the feasibility of classroom politics—rational disagreement with what is taught—must imply the feasibility of real-world politics—rational disagreement about the kinds of human beings, the institutions, and the actions appropriate for a better economy. If the students are durably endowed with a capacity for socially critical reflection that is denied to the agents in the models studied by these students, there are only two possibilities. Either the models are critical descriptions of a yet unborn economy for the realization of which the former students will (as the uniquely informed and critically reflexive members of the economy) have a specific and privileged mandate. Or these models are simply mental objects populated by automata with which the former students will continue to play around in a vacuum, without ever establishing any contact with the real world. In other words, either the former students become an enlightened aristocracy of politicians or they become a self-referential group of academics. *Mainstream economists can self-consistently address their theories to real-world citizens (among which their undergraduate students) only if there are non-idiotic citizens in their models.* Since there are very few—if any—of the former and none of the latter in mainstream theory, the models that are being taught in most “good” departments imply a classroom politics which is very different from real-world politics, *de facto* withdrawing the students into a category by themselves, together with their instructors, at a reflexive distance from the unreflexive hustle and bustle of economic life with its instrumental calculations.

The mainstream economist may, however, still have one reply up her sleeve. She may now argue that, far from being idiotic, the agents in the mainstream theory, and in “political economics” in particular, are in fact so strongly public minded that the reason why they are not modeled explicitly as reflecting on the economy and on social improvements is that they are implicitly assumed to have *already completed* their reflection and to fully adhere to the way the model economy is operating. This is synonymous, she could argue, to adding to the usual axioms of the theory a *unanimity axiom* of a special kind: In model *M*, the agents unanimously subscribe to the modeler’s axioms concerning their rationality and their interactions—in fact, it might be suggested, the modeler’s axioms can be viewed as nothing

but a replica of choices the agents themselves could have made. Hence we would have an “as if” argument: Any economic model (or, for that matter, any model in social science) operates as if all agents in it had previously reached a sort of “reflexive equilibrium” about what it means for them to be rational and about what it means to interact socially in an acceptable way.

Economic knowledge as a tool for action

If this is so, however, then one important prerogative of “positive” economics flies out the window. No theoretical model is in any sense descriptive of “reality,” and it is not even a simplified representation of reality. It is the more or less sophisticated or partial sketch of a “possible social world.” As such, it is a *proposal* for a self-contained social world that can only *become* descriptive in the extremely unlikely event that *all* agents in the real world espouse its underlying worldview—provided, in addition, that all axioms and assumptions are empirically feasible and psychologically sustainable. In other words, *the degree to which any economic model or the underlying worldview is empirically descriptive depends on the number of empirical agents who adopt that worldview as their motivating force for their everyday economic actions.* Empirical descriptiveness is strongly akin to a Boolean variable: Either (almost) everyone adopts the same theory as their worldview and that theory becomes self-realizing; or not (almost) everyone adopts it, and reality stays forever short—often in a non-measurable way—of the worldview and its various derived models.

For all practical purposes, this means that no economic model is ever positively descriptive. Economists are not empirical scientists, they are normative philosophers. Economics is not part of physics or biology, but of social and political philosophy. Economists are in the most noble sense speech-writers for political causes—they teach to convince and obtain adhesion, not to provide a top-down description in the way that a physicist or a biologist tracks the trajectories and mutations of molecules. The main reason for this is that *economics is a component of social life and social life is a complex, bottom-up affair*—so that in fact, as soon as the economist speaks out and lays down transparencies, she is, at least indirectly through the worldview underlying her particular model of the moment, *describing herself and her audience together with the rest of the agents.* Let me use a playful caricature. One reason why psychologists cannot have a decent “scientific” meeting is that as soon as they speak of their patients or set out their theories, they also speak of themselves and their colleagues in the room; this is not the case for a physicist, a chemist, or a biologist, since to the best of our present knowledge the molecules in the atmosphere, chairs, and carpets of the conference room, as well as the cells in the speaker’s body, do not hear what is being said about them. And this is why so many economists would like to be physicists even though the impact of their statements is closer to a psychologist’s.

The bottom line of all this is that any economic model is a hypothetical construct, underpinned by a particular worldview (which is not always well spelled out by its carrier) and *inserted into, rather than representative of, a concrete, ongoing socioeconomic process—social reality*—that cannot be known by anyone but on which each worldview offers a normative perspective. Indeed, one of the deepest-held convictions underlying this book is that methodology and epistemology are part of social ethics. We construct knowledge about the economy because we want the economy to be a better place. In particular, economists produce and diffuse knowledge about the economy because they want the economy to be a better place. To move even deeper, I am convinced that the main—if not the only—source of our “passion to know” is dissatisfaction with the economy as it is. And this dissatisfaction makes us throw political programs into the world in the hope that they will be adopted by a sufficient number of, and if possible all, citizens.

This intrinsically political character of economics provides a simple explanation for the deep conflicts which exist within pluralistic economics departments and the equally deep drive for homogenization that is sweeping the profession these days. *In the social sciences, political dominance is a precondition for—rather than a result of—“scientific” validity*, and this troubling fact is often concealed behind an institutionally enacted desire to make dominance invisible. However, if the social and economic conditions that make a worldview’s dominance possible are not taken into account in that worldview, it becomes an ideology in the negative sense of the word. This is precisely the case for today’s mainstream theory. It is its *failure* to provide the categories appropriate to a *critically rational* analysis of “really existing” capitalism that may actually best explain the academic dominance of mainstream economics and its status as a would-be “science.” A science it is indeed, but the science of a (set of) self-contained worldview(s) that has little necessary connection to key features of the capitalist system such as exploitation, alienation, commodity fetishism, and most crucially the corresponding agents’ experiential dissatisfaction with those features.

To my mind, a genuine *political economy* for today is a set of economic paradigms (neoclassical theory and its recent cognates obviously being one of them) each taught in such a way that their interdependence within a meta-paradigmatic political process—going on both within and outside the academic sphere—is explicitly present in each of them, even though each of the underlying worldviews retains its specificity and its claim to unique validity *as a political program*. This is the fundamental idea underlying Critical Political Economy.

One of the key features of Critical Political Economy, therefore, is that *each ongoing paradigm must be seen as an inspiring framework for a specific way of perceiving oneself as a rationally satisfied or dissatisfied agent within a rationally or irrationally operating economy*. Critical Political Economy therefore seeks to promote a pluralistic—though very rarely egalitarian—“federation of critical economic worldviews.” This federation of critical

economic worldviews generates a complex, nonlinear process in which the concrete state of the economy emerges as an unwilling synthesis of the various critical descriptions of the economy desired and aimed at by the carriers of the various paradigms. Thus, as a *constitutively multi-paradigmatic, political contest of ideas*, political economy is of necessity immersed—and has to come to know itself as immersed—in a constantly ongoing social process. In fact, this should be one of the key cognitive features of any political economist. She ought to recognize herself as an *observing participant* in a dynamic process that escapes her grasp but to whose shape she is contributing, both directly through her own theoretical assertions when addressed to the appropriate audience(s), and indirectly through the feedback effect her work has on her intellectual opponents. She ought to accept, therefore, that attempts to silence those opponents reduce the freedom of the economy in which she lives, and atrophy the possibility for the economy to evolve into a genuinely self-criticizing system.

Plan of the book

This book is divided into four parts. Part I, entitled “Uncritical complexity,” investigates the limitations inherent in the mainstream way of doing economics. It argues that these limitations are linked to economics’ portraying of agents as atoms or, at best, automata. As a result, both standard neo-classical theory—which is discussed in Chapter 2—and cutting-edge “complexity” economics with its cognitivist bend—which is discussed in Chapter 3—share the same basic flaw: they do not allow for the exercise, by economic agents, of their innate capacities for critical reflection about the economy. Chapter 4 traces this fundamental flaw back to a methodological stance which modern economics shares with the conservative liberalism of Hayek—namely, the position that in a well-functioning, liberating economy agents should not ambition to reflect on the economy as a whole but, rather, they should perform well as adaptive, “locally” rational agents. Although Hayek himself does not espouse the idea of agents as automata since he promotes the Enlightenment idea of autonomous individuals, it is hardly a surprise that the conjunction of his conception on “the use of knowledge in society” and the atomism of mainstream economics has yielded a contemporary paradigm that—so I argue—is not fit for the modeling of a genuinely liberating economy.

Part II, entitled “Bottom-up Critical Theory: the logic of self-criticizing complexity,” then delves into the possible openings that could be created if economics were to take more account of the heritage of Critical Theory. This is a multifarious heritage that has its roots in the Enlightenment project and sprouted an important branch in the Frankfurt School of non-dogmatic Marxism. Chapter 5 offers a discussion of this heritage (which will already have been touched upon sketchily in Chapter 2), focusing on the approach to social criticism drawn up by Horkheimer. In contraposition

to Hayek's idea of the use of *uncritical* knowledge *in* society, I coin Horkheimer's idea as the use of *critical* knowledge *about* society. This allows me, in Chapter 6, to delineate a project which combines the best of Hayek and Horkheimer, and which I call "bottom-up Critical Theory." This serves as the basis for the construction of Critical Political Economy. I argue that, fundamentally, economics is never about positive description or about mere explanation, but about the *critical description* of the economy—that is, a way of describing the economy in such a way that one also expresses a criticism and an orientation for improvement. This then leads, in Chapter 7, to the formulation of conditions under which an economy can be considered to be genuinely liberating, that is, to be a self-criticizing system. A central role is played by the ability of the economic system to allow for a plurality of critical positions built up from within the economy, rooted in a variety of lived experiences of dissatisfaction with the economy. Critical description is inherently plural because lived experiences of dissatisfaction have an inherently situated component. Critically rational agents carry their critically descriptive theories into their economic interactions and attempt to *harness the economy's complexity* in such a way as to further their own preferred critical description of what a better economy ought to be like. Chapters 6 and 7 are the central theoretical chapters of the book. They build up the crucial concepts required for Critical Political Economy to have solid foundations.

Before we move, in the last three chapters, to the spelling-out of Critical Political Economy, a short Part III, entitled "Toward a critical mainstream?" offers a discussion of the question that motivated Parts I and II, namely, whether mainstream economics is apt to become a discipline oriented toward social criticism. Chapter 8, which is the sole chapter of that third part, traces out some of the main features of a formal model of critically rational economic agents. It investigates the departures from standard atomism that would be needed for the mainstream to move sufficiently in the direction suggested in Part II. This turns out to require, however, that mainstream theory has to potentially include all *non-mainstream* approaches within itself—which means, effectively, that at its own frontiers mainstream economics self-subverts: In a genuinely liberating economy, the complexity of reality can only be studied by an inherently pluralistic economic science, that is, by a plurality of critically descriptive paradigms reflecting the various lived experiences of dissatisfaction with the economy. This self-subversion of orthodox economics is what I mean by "post-orthodox pluralism."

It is this post-orthodox pluralism that Part IV, entitled "Critical Political Economy: the logic of 'post-orthodox' pluralism," studies in more detail. The basic impetus comes from the inherent plurality of critical description in a liberating economy: there can be several irreconcilable but equally scientific, critical descriptions of the economy in circulation. None of them can be called false, because none of them can be falsified, even though they

may convey radically differing perspectives on economic reality. Chapter 9 discusses and formalizes various roles the economist might play as a “consultant” in a complex economy, and argues that while Hayek as well as Horkheimer are imbued with a monistic view of how the dynamics of economic ideas should proceed, combining their insights can help us view economists as those who can help free citizens flesh out and promote various critical descriptions of the economy. In Chapter 10, we delve still more deeply into the demands of pluralism, ending up with the idea that in a self-criticizing economic system, the economics that studies this system should itself be a self-criticizing discipline. This is the basic foundation for Critical Political Economy. It means that for an economy to be genuinely liberating, i.e., to promote the exercise of critical rationality by all its agents, economics within that economy has itself to be genuinely liberating, i.e., inherently pluralistic and open-ended. Finally, in Chapter 11, I offer some reflections on how a genuinely liberating economy would organize the teaching of economics and the dissemination of economic paradigms among citizens. In the name of post-orthodox pluralism, it criticizes current ideas on “economic literacy” and suggests a curriculum that would conform to the main requirements of Critical Political Economy. Such a curriculum would involve a much greater open-endedness about the meaning of such terms as “rationality” or “optimality,” a stronger affirmation of economics as a discipline that has emerged and continues to emerge from a complex historical process, and much greater attention paid to the internal politics and sociology of the economics profession. It would, overall, mean the demise of the traditional split between positive and normative economics, and it would promote the idea—crucial to Critical Political Economy—that in a post-orthodox perspective any “positive” explanation is also normative and any claim to “normativity” has to be carried, in the actual economic world, by agents who have critically espoused it, and not just by the economist who first thought of it. The book closes with the suggestion that in a genuinely liberating economy, each and every economic paradigm put into circulation should have passed a “Critical Political Economy Test”, regardless of whether it is orthodox or heterodox.

I have written this book with the conviction that economics—whether “orthodox” or “heterodox”—could be made into a politically acceptable discipline, rather than remaining a questionable, top-down enterprise reserved for a caste of Knowing Subjects, if only economists gained the right insights about their genuine role in a liberating economy. Critical Political Economy, to my mind, offers these right insights. It doesn’t deny the specific place of economics and economists within the economic process itself, but it seeks to diminish the reflexive distance that too often separates

the economist from the agents she is modeling and about whom she talks with decision-makers and politicians.

If we taught economics in a pluralistic, post-orthodox way, some of our cognitive privileges as economists would certainly be in jeopardy. But that is a sacrifice we should be prepared to make if we truly want to promote a liberating economy. Our “science” would be political through and through, rather than left to the narrow dynamics of a profession that discusses “agents” and “citizens” by dressing them up in assumptions it does not even apply to itself. In a complex economy, such a dichotomy is unscientific. We should not espouse it. We should not promote it. We should move from orthodox–heterodox combat to post-orthodox pluralism. Only in this way—by letting rational “agents” and “citizens” decide for themselves—can a hierarchy between good and bad economic theories be legitimate, if and when it does eventually emerge from the complexity of a critically driven system of interactions.

Let’s make agents critically rational and give them the cognitive means to harness social complexity with their critical theories. The complex economic process itself will do the rest. Who is “good” and “bad” as a theorist and modeler of that complex process is not for economists alone to decide. Unless, that is, we are prepared to relinquish the full extent of what “rationality” means, and to settle for a narrow, truncated conception of the agent and his cognitive abilities. I don’t think we should be prepared to accept such a minimalist outlook. In an economy that should be both complex and liberating—an economy that should be liberating *because* it is complex, and complex *because* it is liberating—people deserve better.

Part I

Uncritical complexity

2 Uncritical atoms

The limits of standard economics

This chapter lays the groundwork for the analysis. In a sense, the arguments developed here are pretty self-evident. They are simply meant to convey the basic idea underlying the whole of Part I: *mainstream economics has not, up to today, been constructed in such a way as to be able to portray the economy as a self-criticizing system*. This chapter engages standard neoclassical economics—or “Economics 101”—and its more rudimentary portrayal of rationality and interactions. As Chapters 3 and 4 will subsequently show, the basic idea applies also to cutting-edge “complexity economics” and to its main philosophical proponent, Hayek.

Some might argue that spending one’s time discussing the all too obvious limitations of standard, pre-complexity economics amounts to denigrating a straw man. After all, what can you expect in terms of critical force from an approach such as neoclassical economics, which is no longer even part of the frontier of the discipline? We will see, however, that standard theory’s neoclassical heritage is rooted in an atomistic framework that *actually did have* critical force two-and-a-half centuries ago, but has nowadays become outdated. So, although this chapter should surprise no one in highlighting the intrinsic inability of basic neoclassical economics to be of any real help as a contemporary tool for social criticism, analyzing that inability nevertheless is important. Indeed, although the inability is surely to be expected, it is the *reasons* for the inability that interest me here.

Moreover, there is always a substantial lag between front-line research and ground-level teaching, as well as everyday political debates. Therefore, “Economics 101” reasoning is still widely used both by scholars and by educated citizens (including philosophers) when they want to speak out on normative social issues such as, for instance, the optimality of taxation or the link between markets and freedoms. Although conceptually outdated on various counts, standard neoclassical economics is still heuristically influential. It is therefore important to suggest that it has today become an intellectual obstacle to further social emancipation.

Thus, the rationale for this first chapter is twofold. First, it will allow us to sweep the floor clean of very basic misunderstandings about economics and emancipation. Such misunderstandings can be addressed already within

the simple analytical framework of the pre-complexity mainstream. Second, it will allow us to introduce some of the arguments to be further developed later on, and to bring in some of the basic concepts that will gradually help us to ground Critical Political Economy. The reader should therefore not infer from the content of this first chapter that I believe mainstream economics has remained merely neoclassical. We *will* be moving on from here!

Two basic questions

A stormy context

There is currently a resurgence of discussions on social criticism and on the possible return of the critical intellectual (see, among many others, the impressive systematization effort by Boltanski and Chiapello 1999, as well as recent collective volumes such as Jallon and Mathieu 2002, Lojkin 2002, or Renault and Sintomer 2003). However, this movement does not seem to have reached the bulk of economics departments. Some of us might lament this situation. Should we not see it as yet another sign of the “conservatism” allegedly pervading a substantial portion of mainstream economics profession, making it one of the strongholds of “anti-politics” about which so much has been written in recent years (see, for example, Bourdieu 1998, 2000a; Sapir 2002; or Dezalay and Garth 2002)? I don’t think this is the correct view of things. I want to suggest something different. Mainstream economists are, often unwittingly, using theoretical concepts and tools that make it impossible for them to speak *coherently* about the *emancipation* of sections of the population that are *dissatisfied* with the existing economy.

The reason for this impossibility is not that these theorists are all more or less implicitly “right-wing.” That is certainly not the case. Rather, it is the theoretical tools they routinely use that render problematic, or even unintelligible, certain categories which used to be the pride of critical social science (see, for example, Giddens 1971; Fay 1975). I am thinking of categories such as “social change,” but also “revolution” and even “social emancipation” as such, as well as the concept of “oppression,” which used to guide the progressive citizen’s consciousness and activism. I want to surmise that the tools of standard economics do not make room for economic agents’ aspirations to a better economy and to better ways of being human.

May 2000 saw the publication, in the Parisian daily *Le Monde*, of the “open letters” of the French economics students (see Fullbrook 2003). In almost immediate response, and on request of the Education minister, Jean-Paul Fitoussi drafted a report concerning the teaching of economics at French universities (Fitoussi 2001). Two camps debated passionately. On the one hand, there were those who had long been, and were still, accusing the mathematical social sciences of condoning the prevailing state of social relations. Standard mathematical economics and especially general

equilibrium theory, it was claimed, is an objective ally of the economically dominant social classes. On the other hand, there were those who had always viewed mathematics as a mere language with no connection to any philosophical, political, or ideological options. Now, sure enough, mathematics is an important factor in the debate. But the question of the mathematization of economics may in fact have distracted the debaters from a deeper conceptual and structural issue. *Given its very structure, and quite independently of the intentions of this or that particular theorist, is today's standard economics a non-critical, or even an anti-critical, discipline?*

I am using the word “today” because, as we will see, I believe a sensible answer to this question can be offered only if we become more sensitive to the *historicity of theory*. That is, the standard paradigm of economics is specific to a time and space; it is historically located in a very strong sense. As Bourdieu (2001) has argued, natural science may be able to account in a historically located way for scientific laws and patterns which in themselves have little or no historical character. But in social science, this split is more problematic. Even if you are careful not to lapse into a sort of “mystical” functionalism, it is difficult to deny that the theories of the social world—i.e., the representations of society held by people in a given time and place—are closely linked to the sociopolitical issues of that time and place. Of course, this does not mean that theoretical representations just change mechanically or automatically along with the changes in social or economic conditions. But there are indeed, at any given moment, tensions working for or against certain theoretical representations of society.

The reason for this is not hard to find. In social science a theory, or even a “piece” of theory, always offers grounds for saying how things should be (even if you have only been describing the way they currently are), and for making judgments that will affect certain groups and/or persons given the “place” they occupy in the representation of society to which the key speakers and key decision-makers subscribe. (For various discussions of this aspect of social science and especially economics see, for example, Cordonnier 2000; Lebaron 2000; Bernstein 2001; Nelson 2001; Hoover 2003.) In the terminology used later on in this book, social theories are always (be it only implicitly) *critical descriptions* of the social world. What preoccupies me in this book is whether *given the tools and concepts it uses* economics is offering a sensible framework in which to reflect on what it means to live and act in a liberating economy.

The time therefore seems ripe to ask what critical and emancipatory potential, if any, today's standard economics possesses. Given the pretty generalized dissatisfaction voiced outside the economics profession but also, in part, inside it, the question is indeed crucial. Only if we make progress toward a *more explicitly critically oriented economics* can we hope to keep up the ideal that has always pervaded progressive social science: not only to give a “positive” descriptive sketch of whatever social arrangements currently exist, not only to offer a technically sophisticated blueprint for a

non-existing, imaginary system, but to provide tools for *a reflexive endeavor toward a better society, starting from society as it is.*

Two questions: methodological, sociological

Our aim throughout this book will be to scrutinize the basic structure of contemporary mainstream economics in order to see if it can support a possible critical posture. In this regard, I think we are currently facing two separate questions:

- (a) *A theoretical and methodological question:* Does standard economics contain a potential for social criticism? If it does, of what sort is that potential, and can it be oriented toward social emancipation? As we will see, today's body of standard economics is the belated residue of a now antiquated "bourgeois critique" of pre-bourgeois modes of economic organization. How could this body be reformed (if that is at all possible) so that it might become a tool for the kind of social criticism so eagerly awaited by an increasing number of observers, both within and outside the discipline?
- (b) *A sociological and political question:* Do the economists who inhabit today's economics departments carry in them a potential for social criticism? Even if they knew the critical-emancipatory potential of the theories they teach, and if they were aware of the changes needed to make that potential effective [see question (a)], would there be *political* room today for economics departments with a "high critical content"? This question is about the political embeddedness of research and teaching in economics.

In Parts I and II, I will be concerned mainly with question (a). Question (b) will become increasingly central as we approach and enter Parts III and IV. Together, these two basic questions make up the foundation of a *critical methodology* in economics. By that, I mean a methodology allowing for the possibility that the currently dominant body of economic theory is part of an ancient project of social emancipation that has by now become pretty outdated, and that might actually have become a non-emancipatory, or even an anti-emancipatory, body of thought.

A tradition of social criticism

The meaning of criticism

What do I mean by "critical" and "criticism"? For the more philosophically minded, let me point out that I do not mainly have in mind the idealist criticism which was brought to full fruition by Kant and then by Hegel. These thinkers constructed an elaborate "critique" of the faculties of the

human understanding—a critique that consciousness is able to perform on itself. This implied the self-criticism of a reflexive, and therefore ultimately self-regarding consciousness.

So criticism is closely linked to reflection. But “to reflect” does not mean only consciousness looking at itself. It also means to stand at a critical distance in order to assess the material conditions of existence that emerge in the world outside of consciousness. These material conditions depend on the differentiated and varied ways in which agents interact in society in general, and in the economy in particular. This other meaning of “criticism” leads the critical agent to reflect on social and economic interactions. This implies that the agent performs a threefold judgment:

- 1 First, he exercises his *normative judgment* in order to figure out what kind of socioeconomic organization is required for the economy to be a “rational” one (which includes a rational way of structuring interactions and a rational way of being a human agent).
- 2 Second, he exercises his *theoretical judgment* in order to understand which factors explain the distance between current (“real”) socioeconomic organization and desired one. This is an explanation of why 1 is, for the moment, merely an *abstract* exercise.
- 3 Finally, he uses his *practical judgment* in order to assess the concrete possibilities available in the current society for realizing the desired social organization, i.e., for collapsing the current distance in 2 by moving out of abstraction and *realizing* 1.

So the word “criticism” does not designate a reactive expression of discontent, as when a teenager criticizes his parents. It means that the individual spells out to himself the reasons he has to oppose the current economic organization and the current social relations, and to act rationally on those reasons. Clearly, this practical goal needs to be assisted by theoretical reflection. This theoretical reflection is, in principle, *common to the theorist and the agents whose interactions he is theorizing*.

(Re-)introducing the Frankfurt School

I want to explore the potentialities and faults of standard economic theory in order to see whether *some* critical project, in the sense of 1–2–3 above, could be located within its premises. To do so, I will seek inspiration in a specific but important tradition of social criticism: the first generation of the so-called “Frankfurt School.” (For historical overviews of the Frankfurt School and its evolution through various “generations,” see Jay 1973 and Wiggershaus 1988.) More precisely, I will draw on Max Horkheimer and Herbert Marcuse, who in the mid-1930s set out to renew Marxism outside of mainstream, Leninist and Stalinist dogmatism. Their work can be seen as the first successful effort in the twentieth century to recast Marxist social

criticism while staying true to its two cornerstones: on the one hand, the postulate of a unity of theory and action (*praxis*); on the other, the postulate that “realizing philosophy”—i.e., making philosophical reflection coincide with the movement of ongoing reality—required a “critique of political economy.” Horkheimer and Marcuse recast this paradigm of social criticism within a historical context which, naturally, Marx had not included in his own analyses. The 1930s differed from the mid-nineteenth century both politically—because of the rise of National socialism and Stalinism—and economically, with the abysmal crisis of the 1930s.

How can Horkheimer and Marcuse help us in fleshing out our critical orientation? I will give more details about this in Chapters 5 and 6. For the time being, a few initial considerations will be sufficient. The Frankfurt tradition inherited from Marx the *critique of bourgeois society*. According to this critique, one of the very first things any thinker has to do is learn to view himself as an actor involved in society, and not just as an observer. For Horkheimer, scientists are not just deciphering, in a “positive” or “neutral” way, objects that are “given” to them. He calls such an erroneous conception “traditional” theory, and describes it like this:

The derivation as usually practiced in mathematics is [according to this positivist conception] to be applied to all science. The order in the world is captured by a deductive chain of thought. [. . .] Depending on the logician’s own general philosophical outlook, the most universal propositions from which the deduction begins are themselves regarded as experimental judgments, as inductions (as with John Stuart Mill), as evident insights (as in rationalist and phenomenological schools), or as arbitrary postulates (as in the modern axiomatic approach). [. . .] Whether the primary principles are gotten by selection, by intuition, or by pure stipulation makes no difference, however, to their function in the ideal theoretical system. For the scientist must certainly apply his more or less general propositions, as hypotheses, to ever new facts. [. . .] There is always, on the one hand, the conceptually formulated knowledge and, on the other, the facts to be subsumed under it. Such a subsumption or establishing of a relation between the simple perception or verification of a fact and the conceptual structure of our knowing is called its theoretical explanation. [. . .] *What scientists in various fields regard as the essence of theory [. . .] corresponds, in fact, to the immediate tasks they set for themselves. The manipulation of physical nature and of specific economic and social mechanisms demand alike the amassing of a body of knowledge such as is supplied in an ordered set of hypotheses.* (Horkheimer 1937a: 189–94 *passim*, italics added)

In Horkheimer’s view, traditional science has to be relinquished in favor of “critical” science. Critical science refuses the above conception of the scientist’s social—or, rather, asocial—role. The fundamental illusion of traditional

science is that it believes it is able to locate itself outside of the ongoing social process. By succumbing to this illusion, traditional science helps consolidate ways of thinking and ways of acting that allow the prevailing social order to reproduce itself:

[The scientist] may just as well believe in an independent, “suprasocial,” detached knowledge as in the social importance of his expertise: such opposed interpretations do not influence his real activity in the slightest. *The scholar and his science are incorporated into the apparatus of society; his achievements are a factor in the conservation and continuous renewal of the existing state of affairs [. . .].* In the social division of labor the savant’s role is to integrate facts into conceptual frameworks and to keep the latter up-to-date so that he himself and all who use them may be masters of the widest possible range of facts.

(Horkheimer 1937a: 196, italics added)

Critical science, obviously, does not renounce this structuring function, which is inherent in any scientific theory, and hence is unavoidable. However, it attempts to make the structuring function fully conscious. In that way, the scientist becomes capable of *distinguishing between different possible social orders which his theoretical work might promote*. As a result, he comes to realize that he has a very practical role to play in society. The critical scientist has to choose: either he henceforth supports the existing social order, deliberately and after due reflection; or he opts for a type of theorizing which Horkheimer later calls “emancipatory” or “oppositional.” Emancipatory theorizing aims at promoting a different social order by altering both (a) the practical goals of the theorist and (b) the theoretical goals of the practicing agents which he is modeling.

In order to make this choice, the theorist has to become aware of what constitutes the “backbone” of the current social order. Horkheimer and Marcuse clearly identify two elements: technology on the one hand, the economy on the other. According to Marcuse, we should even go as far as identifying philosophy with economic analysis (this is the way to “realize philosophy”):

At the time when critical theory took shape, in the 1830s and ‘40s, the most evolved embodiment of consciousness was philosophy [. . .]. Once critical theory had understood that the economic relations were responsible for the whole of the existing world and grasped the overall structure of social reality, not only did philosophy become superfluous as an autonomous science pertaining to this reality, but those problems which had to do with the possibilities of mankind and of reason could from now on be tackled by economics.

(Marcuse 1937: 102)

At first glance, no economist could dream of a more unconditional support for the discipline. Although, as we will see in a moment, he does not quite support *standard* economics, Marcuse's position is certainly that economic interactions betray the deepest, most crucial aspects of modern society.

Economics and rational order

Metaphysically, standard economics derives from a train of thought—inherited from Hume and especially Smith—that believes in the unwitting rationality of coordinated economic acts by self-interested individuals. And the Frankfurt School, too, never gave up the idea that the ultimate aim of critical social science should be “the creation of the reasonable society” (Marcuse 1937: 110), of “reasonable conditions of life” (Horkheimer 1937a: 199), of “a rational society” (Horkheimer 1937a: 251). As demonstrated by Hirschman (1977), starting in the seventeenth century the eminent social role of guaranteeing the “primary order” was gradually shifted from the religious to the economic, and this explains what Horkheimer and Marcuse assert about the crucial social role entrusted to the (social) scientist.

It so happens that, at our present moment in Western history, the social order is a “bourgeois” order sustained by an *abstract* philosophy:

It is because of the social conditions of existence that the work of the philosopher has been, and still remains, essentially abstract. [. . .] Whatever truth the philosophical concepts do contain has been attained through abstracting from the concrete status of Man and is only true within this abstraction. [. . .] [Critical theory uncovers this as] dissimulations and distortions subject to which Man was studied during the bourgeois period. [. . .] This abstraction, this radical pulling-back from the given reality makes it possible for [the scholar] in the bourgeois society to follow a path of undisturbed search for truth, of focusing on reality. Of course, the thinking subject thereby “leaves out” not only the concrete and the factual aspects of reality, but also all that is imperfect in them. Still, he cannot jump over his own shadow. *He has carried the monadic isolation of the bourgeois individual right to the very root of his thought process, and his whole reflection takes place within this horizon of untruth which conceals to his eyes the true way out.*

(Marcuse 1937: 115–19 *passim*, italics added)

The whole perceptible world as present to a member of bourgeois society and as interpreted within a traditional worldview which is in continuous interaction with that given world, is seen by the perceiver as a sum-total of facts; it is there and must be accepted.

(Horkheimer 1937a: 199)

Despite these pretty radical insights into the “bourgeois” way of thinking, Horkheimer and Marcuse never went beyond a few declarations of principle about the need to “realize” philosophy in the form of a critique of bourgeois economics. Marx linked the critique of political economy to the political activity of revolutionary consciousness-building among the economically dominated, i.e., the proletariat. He considered that the highest task of a practically oriented theorist was to uncover the mechanisms of economic domination and the correlated mechanisms of symbolic domination, in order to transform them into levers for emancipatory practice. This was also the goal that Horkheimer and Marcuse claimed to be pursuing. But they never pursued it in practice. Whereas Marx’s own analyses were able to spark Marxist economics from the 1920s on into the 1980s, nothing comparable occurred with the Frankfurt School.

There is no economics linked in any self-evident or even remote way to the Frankfurt School’s philosophical critique of traditional science and bourgeois economics. This is surely one of the main reasons for the lack of interest in Critical Theory outside the narrow confines of philosophy itself. The lack of interest is blatant in mainstream economics. Is this only a happenstance? Or rather, is it that in mainstream economics as it has evolved, scholars cannot even perceive the possibility of borrowing from Critical Theory in order to become “emancipatory” economists?

I think we should take this latter assumption seriously. Mainstream economists ignore Critical Theory because they have never heard of it, of course. But the main reason why they have never heard of it is that the models they construct and teach implicitly reflect a conception of society in which social criticism is not socially legitimate, or even makes no sense at all. When you think of it, this is hardly surprising, since mainstream economics itself came out of a tradition that was initially a tool for *bourgeois* criticism of *pre-bourgeois* society. How could it now undermine its own presuppositions about what a free society is?

To let this idea sink in, let us spend a moment recollecting the genesis of standard economics and the role of social criticism it played at a certain point in the past. We will then be able to understand why it necessarily ended up turning against the further emancipation of those very agents it initially helped emancipate.

The anti-emancipatory inversion of standard economics

The strand of classical economics that has most strongly influenced today’s standard theory emerged within the Scottish Enlightenment. It was initially an attempt to articulate and push forward the threefold critical movement of normative, theoretical, and practical judgment. This has been shown, for example, by Hirschman (1977), Sen (1987), or McCloskey (2006). At the hands of Adam Smith, Bernard Mandeville, and consorts, as well as of John Stuart Mill, economics was endowed with a clearly moral dimension. It had

a manifest goal of human emancipation. Smith and Mill, for instance, voiced practical programs, both in terms of organizing political and economic institutions and in terms of citizens' education. At the time, the underlying aim was to assert the material and moral superiority of bourgeois society over feudal modes of social organization. Liberalism, classical economics, and utilitarianism all emerged within the same broad "emancipatory atmosphere" (see, for example, Muller 1993; Arnsperger 1998). We will recall the fundamental issues connected to that atmosphere in a moment.

The emancipatory vision at the origin of economics has today been literally *overturned* into a non-emancipatory, and even anti-emancipatory, vision. For reasons we will have to clarify, the standard representation of the social world is no longer a vector of emancipation that breaks in *from outside* the prevailing social system. It has become, for most if not all standard economists, the constraining framework *inside of which* any emancipatory project today *has to be* formulated. The only social criticism still audible today seems to be the so-called "normative economics," i.e., the theoretical approach that utilizes the standard representation of the social world in order to study "social issues." This makes it look as if the representation of the social world implicit in standard economics were merely a toolbox and not the historical product of a stage of Western, mostly Anglo-Saxon, societies' political and moral development. Most mainstream economists will react to this diagnosis with skepticism. "How can you be so sure," they will ask, "that 'our' economics has at its very core such a force of social conservatism?" Although I do believe that such a force is indeed implicit in standard theory, I also agree that we need to proceed carefully in order to avoid sweeping, across-the-board statements.

As a matter of fact, the central question initially is what exactly is being designated by this idea of a "standard representation." Do we take this to be the Walrasian models and their associated social logic? Do we also include non-Walrasian approaches, and perhaps even various developments in game theory? My position is that the expression "standard representation" includes everything that pertains to the so-called *atomistic vision of the social world*. (For a detailed discussion of atomism in terms of "internal and external closure," see Lawson 1997, Chapter 8.) Atomism inherited from "monadological" philosophies is precisely the overarching vision which initially served as a basis for the emancipatory drive of classical economics in the Scottish Enlightenment. It is this same atomism which, as I will be arguing, has nowadays become an intellectual obstacle to further reflection on social emancipation within mainstream economics.

The atomistic vision of the social world

By "atomistic," I mean a vision of the world in which basic entities are viewed as monads (see, for example, Bourdieu 1997: 184–93; Arnsperger

1999). Monads are self-enclosed entities. The monadological vision was initially seen as implying a conception of Man as a being endowed with autonomy (see, for example, Schneewind 1998). That is, using monads as the basic entities of the world, Enlightenment philosophers in the aftermath of Leibniz could metaphorically speak of Man's radical freedom vis-à-vis authoritarian and all-encompassing political and religious regimes. This "freedom of the spirit" exists in the abstract, i.e., independently of the concrete sociopolitical experience of the person, which may be one of bondage and oppression. Recall that this gap between the abstract and the concrete is what led Marcuse to characterize bourgeois thought as abstract thought. One of the most momentous implications of bourgeois abstraction was that trade and commerce increasingly came to be viewed as an expression of freedom, and even as the embodiment of "rational" action *per se*. Decentralized markets came to be seen as the *social* application of a radical *philosophical and methodological* taboo: when explaining and assessing the "goodness" or "badness" of social phenomena, it became strictly forbidden to start from anything else than individuals and their abstract "free spirit."

In that sense, we can and must label "individualistic" any atomistic approach rooted in the tradition I am outlining here. We could simply speak of individualism instead of speaking of atomism. This would have the advantage of tying in to the most widely agreed historical analyses (see, for example, Renaut 1987) as well as the contemporary epistemological debates around the various types of individualism in social science (see, for example, Hargreaves-Heap *et al.* 1992; Franssen 1997). However, given the fact that the very word "individual" has by now become so general and so innocuous within standard economics (who has not heard of "individual *i*" in an economics seminar?), it seems preferable to make explicit the *fundamental philosophical position* at work when a standard economist uses the concept of an individual.

Three traditions have coexisted precariously all through the Enlightenment. The rationalistic monadology inherited from Spinoza and especially from Leibniz, and the behavioral empiricism inherited from Hume, Mandeville, and Smith, were combined with Kantian moral rationalism. This threefold tradition ended up providing the foundations for the project of a "market democracy" of which Friedrich Hayek (1973–79) and Francis Fukuyama (1992) believed they could claim, two and a half centuries later, that it constituted the "end of history" because it was the integral realization of what "being social" means. For Hayek and Fukuyama, "realizing philosophy" means accepting that, once market democracy was in place in reality, further philosophical thought was only a matter of fine-tuning the details.

Before moving in the direction of Hayekian thought after the 1980s, as we will see in Chapters 3 and 4, mainstream economics spent two centuries on a trajectory of its own. The Kantian component tended to be overruled by a strong Humean bias. This has led to a body of economic theory centered

around an atomism permeated by merely conventionalistic and strategic dimensions. In turn, a powerful mechanistic bias tended to drive out the Smithian component to center economic theory around an “atomistic-equilibristic” vision that sought to emulate physics and thermodynamics (see Mirowski 1989). In this vision, the coordination of the actions of independent individuals can only occur if the agents obey opaque and even unknowable mechanisms emanating from the notorious Walrasian auctioneer or some other such “black box.”

The atomistic representation of the social world which flows from this quick genealogy includes general equilibrium theory, whether Walrasian or not, the partial equilibrium theories of industrial economics, as well as the other main developments in game theory. It is this complex which I will henceforth designate as the “standard theoretical representation.” As I emphasized at the beginning, it has lost its primacy at the cutting edge of mainstream research but it remains influential in numerous circles—enough so for us to probe this standard representation as to its internal potentials and limitations.

Lessons from a past long gone

The standard theoretical representation was not always standard. In fact, historically it emerged as the non-standard solution to a specific social problem. After Marx himself, Horkheimer and Marcuse clearly recognize that political economy played a crucial social role in the evolutionary phases undergone by European (and, more broadly, Western) societies from feudalism to bourgeois capitalism. It is undeniable that this evolution went in the “right direction,” namely in the direction of social emancipation. Thus, Horkheimer (1937a: 246) readily admits that “the guidelines” of social analysis were “being supplied, [. . .] in Adam Smith’s time, by conscious, inspiring, historical concerns.”

Obviously, while this particular historical stage in emancipation was partial and imperfect, thinkers like Leibniz, Hume, Smith, and Kant did introduce concepts and ideas that resonated with a new desired form of humanity and of social organization. A new way of being human and of interacting in society was arising. In that sense these concepts and ideas were, at the time, of an eminently *critical* kind. We can and must acknowledge the existence, two and a half centuries ago, of a bourgeois critique of feudalism. This bourgeois critique used, in particular, the notion of “a future society as a collectivity of free men” (Horkheimer 1937a: 217)—a notion that came to be viewed as the horizon toward which human reason looked in search of its own realization. Emancipation meant that people were to use their reason to search for better—that is, more rational—ways of being human and of interacting socially.

Horkheimer and Marcuse suggest a dialectical interpretation bourgeois criticism. According to them, the bourgeois critique and its economic

theory exhausted itself because the “society of free men” came to be interpreted durably as a capitalist market society. In other words, the bourgeois economic theories—notice the plural—*de facto* contributed to the promotion of a particular mode of socioeconomic organization. The material functioning of bourgeois society meant a specific organization of material production, specific criteria for legitimate distribution of the surplus, a specific way of managing the reproduction of social representations through education, a specific structure of cultural production, and so on. These historically and culturally specific aspects *necessarily ended up masking all alternative social possibilities that would have required more or less radical changes in the material functioning of bourgeois society*:

the basic form of the historically given commodity economy on which modern history rests contains in itself the internal and external tensions of the modern era; it generates these tensions over and over again in an increasingly heightened form; and after a period of progress, development of human powers, and emancipation for the individual, after an enormous extension of human control over nature, it finally hinders further development and drives humanity into a new barbarism.

(Horkheimer 1937a: 227)

I think this dialectical interpretation of bourgeois criticism undermining itself is very much to the point. But I do not agree with Horkheimer’s all too monolithic reading of what happened. That is why I am writing of “the bourgeois economic theories” in the plural. The history of bourgeois economics is far from linear and homogeneous. There are numerous points of divergence between the classical and the neoclassical approaches, as well as a number of currents all too quickly designated as “heterodox” (analytical Marxism, game-theoretical institutionalism, and so on). What is more, all of these approaches can hardly be reduced immediately, as Horkheimer and Marcuse would seem to have us believe, to the promotion of market capitalism.

Nevertheless, we may still gather them under the heading “bourgeois.” It is just that my diagnosis of what went wrong with bourgeois economics is partly different from Horkheimer’s narrowly Marxist one. The reason why, all divergences notwithstanding, the above approaches do belong under one heading is that they all subscribe to the atomistic mode of representation of the “society of free men.” Walrasian and non-Walrasian general-equilibrium models, market-game models, positive political-economy or public-choice models, social-choice models or axiomatic models of economic environments—all these models may indeed differ in important aspects, both from the formal and the moral point of view, but none of them purports to lie outside *the atomistic representation of the social world that was required by the bourgeois critique of pre-bourgeois social forms*. This is so much so that this mode of representation actually ended up as a *social ontology*, i.e., a claim concerning the features of the social world “as it is,” or at least

concerning the features of the social world as any “serious” economist has to represent them if she wants to be heard and understood, regardless of the question or issue she intends to address. (On this, see Lawson 1997, 2003.)

This methodological stance dominates today’s practice of mainstream economics. It fails to take into account a fundamental mechanism which Horkheimer and Marcuse wanted to stress. This mechanism is the following. A mode of socioeconomic organization and the associated modes of theoretical representation (as well as the corresponding norms of scientific practice) can, at a certain moment in history, correspond to a process of social emancipation while, at the *same* time, putting into place certain mechanisms—in our case, the practical and normative self-reproduction of the logic of wage employment, of the logic of competition, of the logic of capital accumulation, and so on—which, as they unfold, gradually transform this *same* mode of organization into an obstacle to the *pursuit* of emancipation. To put it more succinctly, the process of bourgeois emancipation ended up boxing itself in by becoming the contrary of what it had initially started out as. According to the Frankfurt School, the body of economic theory that initially served to rationalize the process of emancipation gradually lost its potential for radical criticism and became a tool to resist all further radical criticism.

But how exactly can we characterize the flaw that “blocks” criticism in today’s standard theory?

The inherent contradiction of standard modeling

Many standard economists might retort that, even if you accept to characterize the standard approach by atomicity—a social world of monads subjected to opaque ordering devices—you can hardly accuse these atomistic theories of being inherently conservative. Especially in the light of some hasty judgments that have been passed on this matter in the recent literature (see, for example, Lebaron 2000 or Bourdieu 2000b: 9–26), the point should not be taken lightly. Indeed, the current methodological landscape does not seem to contain any real alternative to atomism. We therefore need to proceed carefully, and “from the inside” so to speak, in order to see what is wrong. When you think about it, the way you should reply to the standard economists’ retort is ambiguous. It depends on the *modeling strategy* you use to account for the economic agents’ rationality.

If you consider the possibility of constructing atomistic models of non-capitalist or even non-market societies, the standard economist is obviously right against Horkheimer’s Marxist claim. There are in fact many atomistic models of non-capitalist or even non-market societies. Take, for instance, Jaroslav Vanek’s (1970) or Jacques Drèze’s (1976, 1985) models of self-managed economies, or John Roemer’s (1982, 1996) and Samuel Bowles’s and Herbert Gintis’s (1998a,b,c) work on market socialist economies, or the advances of Hervé Moulin (1988, 2002) and Marc Fleurbaey (1994, 1995a)

on fair distribution in economic environments, or the analyses of Maussian gift–countergift economies in terms of repeated non-cooperative games (see, for example, Cordonnier 1997, for a survey). It is often because their most vocal critics do not know of these multiple modeling efforts that standard economists so gruffly reject the objection that economics caters to prevailing bourgeois interests or serves to intellectually reproduce the foundations of capitalism. So merely equating standard economics with pro-capitalist, or even pro-market, ideology is not the right way to go. It does not capture what is actually wrong.

What makes the standard economists’ retort faulty is something else. To support Horkheimer’s claim that standard economics *is* intrinsically conservative, you need another sort of argument. Here is how you should think about it. Just ask yourself whether it is possible, within that *same* atomistic framework that allows all these non-capitalist models, to account for *the agents’ emancipatory intentionalities* and for the *critical capacities* (*moral, cognitive, and so on*) with which they have to be endowed for these intentionalities to materialize. From a Horkheimerian perspective, the standard economist cannot just draw up an atomistic model of an already constituted society. She also has to explain why reflexive and critical economic agents, capable in principle of constructing an emancipatory dynamics that requires them to think about the desirable mode of social organization, would “fall back,” so to speak, into an atomistic anthropology and/or politology once the emancipatory step had been taken. How could the standard economist explain why reflexive agents who feel concern for social emancipation would first endeavor to construct—say—a socialist society, and then revert to being the sorts of monads which the *atomistic models* of socialism postulate them to be?

This throws up a crucial question. Can the “bourgeois” characteristics of the agents in the standard theory and of the social organization in which they evolve (including their constitutive inability to reflect on and to produce any future changes in social organization) be *fully endogenized within a sufficiently broad conception of atomized rational choice*? This question can act as a revelator both of the internal critical possibilities of the atomistic representation of the social world and of its internal limitations.

The disappearance of radical choice

By portraying us (you and me) as *homines economici*, standard economics gradually hides from our sight the notion that we might actually have much more radical aspirations, and ends up legitimizing a very narrow view of what it means to be active in society. Indeed, at a time such as ours when we are being overflowed with discourse about the “sovereign consumer” and about our growing “freedom of choice” thanks to capitalist market mechanisms, it seems really crucial that some of us devote time to keeping the spotlight on observations such as the following:

One result of this consolidation [of large industrial and retail groups] is that we are faced with a profusion of minor choices and a dearth of major choices. We can enter a superstore and choose between twenty different brands of margarine, but many of us have no choice but to enter the superstore. Were we to tell the corporations dominating some sectors that, dissatisfied with their services, we shall take our custom elsewhere, they would ask us which planet we had in mind.

(Monbiot 2000: 16)

Hidden behind this somewhat loose piece of rhetoric lies a very heavy reality. One of the factors which restricts our “major choices” by numbing our critical capacities through “minor choices” is the logic of the market economy, whose efficiency depends in large part on the legislative, or even geopolitical, elimination of all non-market institutional systems and of all alternative horizons of socioeconomic organization: more market choices in everyday life (more “opportunities”), but virtually no choices anymore about altering our fundamental courses of action or about changing our economy’s basic structure.

Two rejoinders might be voiced here, and both have to do with the—all too neglected—social role of the theorist, which will be growing in importance as the chapters of this book unfold. Firstly, as was explained in the previous section, one might argue that economic theory itself is not fatally condemned to being an accomplice of market capitalism. On the contrary there are, so the argument goes, numerous standard theorists endeavoring to show a different, “non-capitalist” and “non-market” face of economics. My reply is that these individual theorists are *constructing theories of (partly) non-capitalist and/or non-market societies which have no critical bite on the “really existing” capitalist market and its concretely active ideology*. Thus, they support it by omission, so to speak. What is therefore most urgent is to reflect on the tools and/or the concepts needed to make this critical bite actually effective, i.e., to impel economic agents to really *act upon* the well-meaning theories of non-market, non-capitalist societies that are being read to them.

The second rejoinder is more politically loaded and also less scientifically honest. It suggests that my question is both outdated and dangerous. It is outdated, so the argument goes, because “people today” (whether they be *homines economici* or not) are no longer thinking in terms of radical social change. And it is dangerous because asking about the *possibility* of radical social change means conjuring up the specters of violence, intolerance, and so on. The argument about danger can be countered by noting that a collective action can equally well be a nearly unanimous vote or the creation of a powerful group designed to enter tough negotiations, so that a institutional change can be radical and deep-reaching without being violent. As to the other argument, which says that in any case “the people” today “no longer want” radical institutional changes, my reply is the following: as long

as you are not certain that this alleged refusal or rejection comes after “the people” having clearly perceived and then lucidly rejected real, explicit, articulated alternatives, your argument is not scientifically valid.

The least a theorist can do to honor this scientific requirement is to construct theoretical representations in which (a) part of the agents’ activities consists in *perceiving* and *assessing* alternative institutional systems, and (b) one can offer the *reasons* which lead them to prefer the status quo over radical social change. This is, I believe, a necessary condition for the claim that “the people do not want” radical social change to be acceptable. As we will see, even this concession, however, will open up a potentially important role for the economist, a role that is consistently being covered up by the profession’s reluctance to satisfy conditions (a) and (b).

In the next section, I will offer an illustrative “case study” of the general issue raised here. I will discuss a particular episode in the neoclassical interpretation of the fundamental theorems of welfare economics. To conclude this chapter and tie into the analysis of more recent advances in mainstream economics, I will address the broader issue of whether standard *homo economicus* is able to be a social activist. As announced from the outset, the answer will—unsurprisingly—be negative. However, along the way, we will glean quite a few resources with which to venture into the less familiar terrain of post-neoclassical, cutting-edge economics.

***Homo economicus* and reflexive social change: study of a constitutive impossibility**

To begin approaching the problem, let us ask a somewhat awkward question: Could *homo economicus* become a revolutionary? We could also, more broadly, inquire whether *homo economicus* is apt to become a social activist, for example an anti-globalization militant or an active member of the Mount Pelerin Society (see Ebenstein 2001: 140–6). This more general question will be addressed in the last part of this chapter. For the time being, however, I would like to stick to the more heavily charged word “revolution.” The reason is that, as we shall see presently, this word has been used to interpret one of the main pillars of neoclassical theory, the second fundamental theorem of welfare economics. So let us ask: Could *homo economicus* become a revolutionary?

Besides “revolutionary,” the other crucial word is “become.” Indeed, my question concerns the possibility for standard economic man to *transform himself into* a reflexive and critical agent. I want to use the notion of revolution *heuristically* in order to *test the internal consistency* of standard economics. The question, therefore, is whether the representation of the human subject offered by standard economics is able to account for individuals’ lucidly reflected participation in collective action.

It is not easy to pin down the nature and unity of what might be called “revolutionary phenomena” (see, for example, Hoffer 1951; Baechler 1970;

Coleman 1990: 466–502). Still, we can agree on some minimal features. A revolutionary phenomenon is a collective action, i.e., a composite action undertaken by a set of individuals. It might involve the distribution of these individuals across heterogeneous roles, i.e., most of the time it is an orchestrated action, therefore an organized one. As a result, it can be both a composite action and viewed by each participant as a unified action geared to a *single* objective. This objective is the replacement of an existing mode of socioeconomic organization with another mode of socioeconomic organization deemed to be “better” by all the participants in the action.

Two stages of radical transformation

Let’s somewhat refine our characterization of a revolutionary process, and especially of its triggering mechanism. To restate our minimal features in a more formal way, a revolution is a set of coordinated individual actions based on the unanimous conviction of its initiators that a certain structure X_1 of socioeconomic organization is better (whatever the reasons, which may differ from one individual to the other) than the currently existing structure X_0 . This suggests at least two stages:

- (a) Each individual devotes time and resources so as to *form her conviction* concerning the relative merits of X_0 and X_1 .
- (b) All those for whom X_1 is preferable to X_0 *structure a collective action* with the aim of instituting X_1 .

In standard models—and this is what makes traditional analyses of collective action (Olson 1965; Hardin 1982) rather less than *theories* in the deeper sense of the word—stage (a) is considered to already have unfolded. The discussion then focuses on stage (b), which involves a number of mediations, hence of potential obstacles, leading from individual motivations to the realization of the collective objective. The “logic of collective action” ponders on how to overcome the free-riding problem and the problem of coordination failure, as well as the problem of the collective acquisition of the “best practices” through conventions, and so on. These issues are studied while abstracting from their possible links to stage (a). This is so despite the fact that this first stage also requires various actions, some in the form of individual optimization, some more specifically on the part of *that specific economic agent, the theorist*. In spite of this, and also abstracting from the crucial fact that the mechanisms internal to stage (a) might substantially affect the very parameters involved in modeling stage (b), stage (a) is practically never analyzed, or even taken into account in the economic theory of collective action.

Here, I want to move a few steps toward a better integration of phases (a) and (b), and I will draw from my discussion certain implications as to the social role which the economist could and *ought* to play. In that sense, this

“case study” of revolutionary action in standard theory serves as an introductory illustration of what this whole book is about.

Is the second theorem of welfare economics “revolutionary”?

To start this discussion, let’s begin by discussing the two “fundamental theorems” of standard general equilibrium theory in a somewhat unusual light. My discussion here will not be going beyond undergraduate micro material—“Economics 101.” This shows how basic the flaw is. The two fundamental theorems are one of the most basic and enduring results of standard economics:

First fundamental theorem of welfare economics. Under general assumptions concerning the preferences of individuals and the technologies of firms, any Walrasian allocation is a Pareto optimum.

Second fundamental theorem of welfare economics. Under a certain number of general assumptions, any Pareto optimum can be realized as a Walrasian equilibrium, provided that an adequate redistribution of the economy’s initial resources is carried out.

Let ω be the vector of initial-resource bundles, and let $e(\omega)$ be any Walrasian equilibrium associated with ω . For heuristic reasons I will discuss everything within a two-agent, pure-exchange economy, so that the reader may visualize all arguments inside a simple Edgeworth box.

The first theorem and the convergence theorem: the Walrasian politology

The first fundamental theorem is connected to another prestigious result of standard economic theory. Let $C(\omega)$ be the core of the economy defined by ω and by the preference parameters. It groups all allocations (or reallocations, if you normalize with respect to a given ω) of commodity bundles to which no individual and no coalition of individuals, no matter how large, will object because they are (weakly) Pareto-improving with respect to ω , i.e., with respect to the status quo. Call $E(\omega)$ the set of Walrasian equilibria $e(\omega)$ that exist for a given ω . We then have the following result:

Core-convergence theorem. Any element of $E(\omega)$ is in $C(\omega)$, and as the numbers of individuals in the economy tends to infinity, $C(\omega)$ tends to coincide strictly with $E(\omega)$.

Again merely for heuristic reasons, we may suppose that $E(\omega)$ has a single element.

The implication traditionally drawn from this result is twofold: in general, a system of perfectly competitive markets is only *one* among many means of improving the lot of all individuals with respect to the status quo; however,

it becomes the *only* means when the number of individuals becomes very large.

Together, the first fundamental theorem and the core-convergence theorem characterize what I will call a Walrasian politology. This means the following. In any “plausible” social situation—that is, at any allocation in $C(\omega)$ —each individual feels concern only with the shaded area above the indifference curve which, on her own indifference map, happens to go through ω . Analogously, each coalition of k individuals feels concern only for the intersection of the k corresponding shaded areas. This is the representation of a society based on strict mutual advantage starting from a given status quo. The only gesture of “social concern” which any individual performs is to locate her own curve of ω -indifference in order to see whether, at allocation x , her own commodity bundle—that is, her own coordinate of the x -vector—is above that curve. If it is, she will accept a collective move away from the status quo and toward x . If it is not, she will unilaterally oppose any collective move away from the status quo. In the Edgeworth box, the agent will refuse to move from ω to any allocation x located below her ω -indifference curve. This will be so even if x is itself a Pareto optimum.

In summary, if we put together the first fundamental theorem and the core-convergence theorem, we generate what Amartya Sen, in an article on Walrasian market mechanisms, has called “something rather solid here and now” (Sen 1993b: 505): the possibility, starting from any given status quo, to induce a Pareto-optimal final distribution. This is the well-known theoretical contribution of the first fundamental theorem of welfare economics: even if the initial distribution is very unequal, a Walrasian market will transform it into an “efficient” allocation.

The second theorem and Sen’s notion of “revolution”

Let’s now look at the second fundamental theorem. Amartya Sen has interpreted it in a way that may have been simply anecdotic in his own mind—even if, as we will see, he in fact repeated the “anecdote” twice at very different places and times. This interpretation turns out to be crucial for our present discussion, perhaps even more so if it reveals a “merely implicit” position on Sen’s part. In his book *On Ethics and Economics*, he indicates that this theorem

would be used *only if it were politically possible* to redistribute resources among the people in any way that would be required by considerations of social optimality. [. . .] *issues of political feasibility* can be, obviously, extremely important when dealing with such fundamental matters as radical changes in ownership. [. . .] [the] result can be of real use *only as part of a “revolutionary’s handbook”* [. . .] *If radical redistributions of ownership were not possible*, movements toward overall social optimality

will require mixed mechanisms of a kind not covered by the “fundamental theorem.”

(Sen 1987: 37–8, italics added)

Six years later, in his article on “Markets and Freedoms,” he reiterates the idea. It is not simply a cut-and-paste, but a deliberate restatement of the same point:

To use the competitive market equilibrium to achieve any social optimum, [. . .] could require a total reallocation of ownership patterns from *whatever* pattern we may have *inherited historically*. [The second fundamental theorem], thus, belongs to a “*revolutionary’s handbook*.” [. . .] *if we are not able, for political, legal or any other reasons, to rearrange the resource distribution freely*, the [second] theorem does not guarantee even the limited achievement of Pareto efficiency for any given initial distribution of resources. In contrast, the [first] theorem does guarantee just that—it ensures something rather solid here and now, even if that achievement is far from adequate.

(Sen 1993b: 505, italics added)

Let ω_0 and ω_1 be two initial allocations, such that ω_1 is not in $C(\omega_0)$. Let x_1 be a final allocation in $E(\omega_1)$ but not in $C(\omega_0)$. Suppose we are now at ω_0 . Finally, assume that some agents in situation “0” would prefer society to move to ω_1 in order to get to x_1 which, by the first theorem, is a Pareto optimum. Since neither ω_1 nor x_1 are in $C(\omega_0)$, there will be a coalition of individuals to block the move from ω_0 to ω_1 .

One thing is now immediately apparent. *The reason why the passage $\omega_0 \rightarrow \omega_1 \rightarrow x_1$ is not possible here is that the Walrasian politology forbade the passage $\omega \rightarrow x$ in the previous example.* The immediate implication is that within the logic of standard economic theory as Sen sets it out here, the word “revolutionary” is merely a synonym for “politically unfeasible.” The reason has little to do with Sen’s or anyone else’s well-meaning intention of doing social criticism. It has to do with the fact that the politology underlying the first theorem has not just one, but really two components. First, for a given initial distribution, “global social optimality” is reduced to *Pareto optimality*. Second, it is presumed that the only legitimate way to move toward Pareto optimality is to carry out successive *Pareto improvements* with respect to the initial distribution. Notice, however, that this second component of the Walrasian politology—the restriction to core allocations starting from *any* initial distribution—does not rest on a positive concern for efficiency: x_1 is efficient while ω_0 is not, and still it is forbidden to move from ω_0 to x_1 . Why? Because the imperative of Pareto improvement is a *normative* one. It expresses the idea that the property rights on the individual coordinates of the vector ω_0 have to be safeguarded, *whatever* this ω_0 may be that “we may have historically inherited,” as Sen puts it.

You hardly need to be a dogmatic Marxist to add two other elements. First of all, legal rules are also “historically inherited.” And second, it is likely that the legal rules unconditionally protecting individual property have every chance of having been instituted by specific coalitions. These were probably made up of individuals who, at the time of the promulgation of these rules, were holding a rather more than proportional fraction of total resources. Therefore, the ω_0 “we may have historically inherited” has every chance of being close, in terms of (real) market value, to the ω that prevailed at the beginning of history. Of course, nothing within the Walrasian model guarantees that along a path of successive equilibria, the value of the initial endowment will remain constant; it could decrease because of errors in calculation, or exogenous events such as changes in preferences. It could also decrease through “shocks” such as a resource transfer effected by a welfare state, for instance. The problem is that it is precisely *this* that Sen’s identification of “revolutionary” and “politically unfeasible” precludes: within the Walrasian politology, no *voluntary* transfer of resources will ever occur between rich and poor, since no such transfer is Pareto-improving.

The Walrasian anthropology

But can the less well-endowed not get their hands on resources—i.e., induce the move from ω_0 to ω_1 —by non-political means, by threat, by force, along Hannah Arendt’s (1963) vision of revolutionary episodes as “extra-political episodes”? Perhaps so in history, but not in this model. That’s because along with the Walrasian *politology* comes a Walrasian *anthropology* that underpins and serves it. To the way one assesses what is politically unfeasible corresponds a way of being human. Consider the following conundrum. Here we have agents who historically may enter into conflict, fight, or at least threaten each other—but they’re the *same* agents who are *also* supposed to trade peacefully on a Walrasian market before *and after* the radical social transformation (the putative passage from ω_1 to x_1), using as their sole motivational principle *not* the common interest or the general good, but only their *mutually compatible individual interests*, i.e., the principle of successive Pareto improvements in the direction of some Pareto optimum.

For this peaceful trade to be possible, what is required is a quite specific view of human agency. As I said earlier, the Walrasian individual is a *monad*, a largely self-enclosed entity whose only openings allow him to scrutinize the intersections between his own shaded area of ω -superiority-or-indifference and the analogous zones of the other agents (who carry out the same limited procedure). Nothing else. Neither emotions, nor passions, nor “distortionary” gifts, nor “out-of-equilibrium transactions.” This is one crucial implication of standard economics’ atomism as I described it in the previous section.

Now, consider how awkward an allegedly “revolutionary” sequence congruent with Sen’s interpretation of the second theorem would look. In the first stage, the agents “historically inherit” an initial allocation ω_0 as the result of past Walrasian transactions (along with, maybe, some exogenous shocks). In the second stage, they mobilize—individually, by coalitions, and collectively—time for learning, reflection, and debate in order to be able to decide who would like to maintain ω_0 and who wants to have ω_0 replaced by ω_1 . In the third stage, those who want ω_1 to materialize confront the partisans of the conservation of ω_0 . Political campaigns, bargaining, punctual actions, possibly guerilla war or all-out civil war, ensue. Finally, in the fourth stage, and assuming ω_1 to have been realized after more or less prolonged and bitter antagonism, all these events are suddenly forgotten, the lived experiences of reflection, critical theorizing, fraternity, or hate, etc., are all erased. By construction of the model, they leave no historical or motivational mark—apart, possibly, from altering relative preferences for certain commodities. This means that, for all practical purposes, seen from the present all the past turmoil gets reduced to an “exogenous” shock! Everyone now reverts to being a Walrasian monad, so that the next (perfectly competitive) passage from ω_1 to x_1 can be carried out without obstacles.

Could homo economicus be a social activist?

Sen’s discussion of “revolutionary” action is a particular case of a more general question: Could *homo economicus* be a social activist? A social activist is someone who is motivated by collective action. In particular, individual i is a social activist only to the extent that other individuals j are also social activists. Social activism is a relational characteristic. Therefore, it presupposes a common cause. It also presupposes motivational dispositions connected with that cause. This implies an approach which is largely eluded in micro-individualistic theories of collective action: a common cause is not simply the “resultant” of a set of individual brains that want to unite their efforts “out of the blue” in order to attain a shared objective. It is that too, but only in a second step. In the first step, a common cause is literally a *cause*. It comes about like the eruption of a common world into the individual consciousness. The activist is an agent who lets himself be “caused” by this eruption of a challenge and who, as a result, enters into communication with others in order to construct a joint action. So there are two properties that seem to be required if one is to be an activist. First, there has to be an initial sensitivity to causes, which presupposes a capacity to have an overall view of a social world made up of very diverse and often complexity-generating causalities (see, for example, Arnspurger and Varoufakis 2003: 177–80). Second, there has to be a subsequent capacity to communicate, which presupposes a linguistic competence and an ability to “project oneself into” other agents in the light of the perceived cause.

A story of automata: what standard economics really says

Standard *homo economicus* has none of these capacities. In fact, if one really takes the standard formalism literally, *homo economicus* does not need to be *homo* at all. He is merely a formal entity, a sophisticated algorithm that treats pieces of information received from other formal entities. Information bits can emanate from the network of all other algorithms, as in the Walrasian theory of a synthetic one-dimensional message allowing for the compatibility of individual plans parameterized on this message (see Mount and Reiter 1974). Information can also come from a sub-network of algorithms containing a procedure that connects them into a network, as in non-cooperative game theory where algorithms coordinate onto a fixed point that each of them has been able to compute separately and that self-implements through the networking procedure. In either case, we are dealing with algorithms, hence with automata programmed by a programmer located outside the network of automata. These algorithms receive and send information, and nothing essential is lost by not calling them human.

The Walrasian model of Arrow and Debreu was designed to answer merely a specific logical and computational challenge: does there exist a message of minimal size such that, if it is sent to all automata at the same time, these separately programmed algorithms, responding solely to that message, will send back to the central computer plans whose mutual compatibility that computer can ascertain by a simple summation? This mutual compatibility is never “willed” by any of the automata. By assumption, they are constitutively incapable of such a desire, since their algorithms react only to the parametric message sent by the central computer.

Game theory, which emerged largely out of the intuition of John Von Neumann and was closely linked to his reflection on cybernetics (see, for example, Leonard 1995), is a more subtle and profound version of the same idea. It asks what happens if you network sophisticated automata—I would call them “selectively open quasi-monads”—which share common rules and are endowed with a set of reactive internal models that are interactive, as opposed to those of the Walrasian monads. Would a network of such “improved” automata succeed in self-coordinating? Instead, would it fall into endless cycles or other similar aberrations?

In that perspective, the invention of Nash equilibrium appears to have been a step backwards—one which the theory of evolutionary games and recursive learning is today trying to undo. It was a step backwards in the sense that the notion of optimal response, coupled with the assumption of common knowledge of computational perfection (abusively labeled “rationality”), allows each automaton *A* to compute for itself its own strategy as a fixed point, and to use a subroutine in order to double-check its prediction of the other automata’s strategies by comparing it to the ones they communicate to *A*. This comparison is, of course, invariably correct, and the automata end up “playing” the equilibrium which they had first

attained computationally in this abstract fashion. The ultimate ambition of non-cooperative game theory, at least according to some of its most prestigious promoters—such as Roger Myerson (1999)—is to build a representation of social life as an interconnected network of such “games.” It is a society represented as a network of automata programmed to “play” according to various rules, possibly with certain connections between their respective algorithms.

This is, I believe, a narrative that stays completely true to the letter of mainstream economic models.

Programmed interaction without reflection

It is within this formal framework that the celebrated “problem of collective action” has been posed by economists. Suppose that, as a programmer, you wish to see how your interactive algorithms would coordinate if you had them “play” according to the following rules. Each algorithm is to generate a number, without knowing the numbers generated by any of the others; the number of algorithms playing this “game” is a parameter of each algorithm; the “payment” received by any given algorithm will be equal to the sum of all generated numbers minus the number which that algorithm generated; maximize the automaton’s payment knowing that all other automata are following exactly the same instructions. If the programmer has each algorithm in succession perform this “game” alone, the result will invariably be the same: each automaton will generate the number zero.

Work in experimental economics (which replaces automata by humans) has tended to demonstrate that this prediction is approximated correctly only when the group of real-life agents under study is a group of economists all of whom have studied the Prisoners’ Dilemma (see, for example, Frank 2004: 155–78). To the extent that there really is a “logic” at work—as Mancur Olson (1965) implies in the title of his famous book—it has an empirical counterpart only within groups where most members believe that most other members believe that this model will be “played” by almost everyone. This would seem to indicate that the surest way, and perhaps the only way, for game theorists to end up practicing an empirically valid “science” is to teach game theory to everyone *as if it were* a “true” description of the kinds of interaction that we can all expect each other to engage in.

Mainstream economists use this kind of conceptualization but superimpose on it narratives of “free riding,” “collective action,” “market exchange,” or any other social situation. This boils down to postulating that, when all is said and done, social interactions are reducible to the interconnection of algorithmic automata programmed by an agent outside of the network that connects them. To come back for a moment to the Walrasian conceptualization, it is quite crucial to realize that perfectly competitive equilibrium is a logical concept concerning which there is no plausible institutional or

political narrative. Why? Because, simply, *automata don't reflect*. They blindly solve programs and are not programmed to reflect on the programs they are solving—they are *nothing but* programs. The only one who is in possession of the interpretation of the overall network of automata, the only one who knows that they were programmed the way they are, is the programmer—who is not himself an automaton and is, therefore, qualitatively distinct from the formal entities he causes to interact.

This crucial fact makes little difference in biology or physics. I can program algorithms and then use them to simulate the interaction of cells or parts of an engine or of an atomic bomb. In social science, however, the interacting entities are *from the very beginning* capable of consciousness and of reflexivity. So if I model them as programmed automata, I am implicitly assuming one of two things, which already came out clearly in our earlier discussion of Sen and “revolution”: either (a) they have never yet had the possibility of reflecting on the “why?” even though nothing in their “wiring” excludes it; or (b) they have consciously chosen to relinquish all future capacity of reflection in order to consciously transform themselves into the automata the theory needs to derive the “good properties” of Pareto-efficient Walrasian equilibria or the “bad properties” of socially suboptimal Nash equilibria.

To illustrate, let's imagine the following absurd scenario. A mainstream economist suddenly realizes, to her great personal dissatisfaction, that the members of her society are continually stuck in the suboptimal Nash equilibria of Prisoners' Dilemmas. Banking on a capacity for society-level reflection which, by construction, these agents don't possess (if they did, the Nash equilibrium concept wouldn't be the right tool to use to diagnose their malaise), she writes a book in order to jar them into awareness of the situation. Even supposing they buy the book—which would amount to assuming that they suddenly develop a reflected desire to pull their society out of an “individually rational global situation”—they'd find in it the following proposal: to exit sub-optimality, let's collectively militate to have global rules imposed on us so that our economy gets transformed into a Walrasian economy with perfect competition. We should militate for it because in that new setting our problems of collective sub-optimality will, by construction, be solved.

The reason why this scenario is absurd is not that perfect competition is not “realistic.” In fact, this might be one good reason for viewing it as a social utopia, and the properties expounded in the proposal are indeed correct: as the first fundamental theorem of welfare economics asserts, in a Walrasian equilibrium there can be no free riding because the coordination problem is solved. So what is absurd in this scenario is, rather, that the Walrasian utopia itself can function only if the agents which interact in it are suitably programmed automata. Thus, what our mainstream economist would effectively be doing is to try and rouse Prisoners' Dilemma automata from their programmed indifference in order to motivate them to jointly

become reflexive activists ... who will ask their programmer to re-program them into utterly unreflexive Walrasian automata!

A strange, awkward narrative indeed. And yet, it is exactly the story which Joseph Heath and Andrew Potter offer in their hands-on critique of today's bourgeois activism. Their basic thesis is that "false rebellion" in the age of hyper-commercial brands constantly creates Prisoners' Dilemmas. Naomi Klein screams "No Logo" but, by doing so, she simply creates a new kind of brand, the anti-brand brand. Thus, fashion victims will yearn to be fashionably unfashionable, none of them daring to go against the trend all alone. You can't say that Heath and Potter don't have a point here. So instead of constantly recreating new Prisoners' Dilemmas, what to do? Collective action, of course! And this is where the absurdity comes in. According to the authors, what we should collectively militate for is a perfect-competition economy:

We should strive to perfect the market, not abolish it. One need only glance at an introductory economics textbook to see what an ideal market would look like. There would be no monopolies, no barriers to entry in any industry. There would be no advertising; competition would be based entirely upon the price and quality of goods being offered. There would be no information asymmetries—consumers would be perfectly informed about what they were buying. Firms would not behave opportunistically toward their customers or suppliers, and there would be no windfall profits. And, most importantly, all externalities would be internalized; firms would have to factor the full social cost of their actions into every decision made. This is the direction in which we should be moving. This is also the ideal that has been guiding the recommendations made in this book.

(Heath and Potter 2004: 334)

One can only hope that the argument is made naïve on purpose with the hope that it will, by that token, better serve the goal of collective mobilization and that it will transform the Walrasian monadology into a *cause* to militate for. But of course, the authors cannot possibly ignore the fact that the Walrasian perfect-competition model they are offering up as a common cause for collective activism is, as we have seen, intrinsically a model where neither the firms nor the consumers reflect in any way on the society in which they coexist. Thus, as I indicated earlier, either we are already in that model, or we will never reach it—not even through collective action.

Would you vote to become a homo economicus?

Let's now perform a simple exercise. In our earlier narrative, let's replace "automata" by "consumers and firms," and "programmer" by "the government and the economists who advise it."

We obtain a representation of the social world in which all the externalities are due to “market imperfections,” and the government’s one and only role is to construct—with the help of economists specializing in so-called public economics—“optimal taxation” schemes. These are taxation schemes that are non-distortionary so that, once the government announces them to consumers and firms, they do not lead these agents to adopt actions that render (in this case) a Walrasian equilibrium impossible. Note that the corresponding government apparatus must, by assumption, be composed of agents who have no interest in cheating or bestowing privileges upon themselves. This means, in actual fact, that government agents are assumed to have consciously adopted certain rules of conduct of which they know that the “others” (firms, consumers) will adopt them only under the threat of sanctions. Thus, above the firms and consumers there hovers a benevolent but inflexible alliance between the government and the public economists who advise it, and we are asked to believe that this government was nevertheless elected by these consumers and the members of these firms, all of whom—according to Heath and Potter’s quote—are eager to have an overarching instance solve their collective-action problems.

Why would they unanimously seek such a solution? This is because, by assumption, they are convinced that the perfectly competitive market model is the very best there is: it generates a Pareto-efficient allocation of resources so that there are no wasted opportunities for gains in exchange. That is, indeed, what you can find in any of the “introductory economics textbooks”—Economics 101—which Heath and Potter so warmly praise. But perhaps they shouldn’t take this sort of textbook *that* literally. Reflecting a bit more deeply on the suggested model would lead them to rather different conclusions.

The most elementary consistency would force them to realize that, in the perfect-competition model, the individual agents know nothing of the society in which they live. They do not even know that there are other agents. There is no conscious communication between them, none that they have reflexively willed and built up. Each of them simply reacts, in isolation, to the equilibrium price message coming to them as a kind of “situational” variable. This is really extremely important: the Walrasian equilibrium is a situation *sui generis*, which can only come about if it has always already been prevailing. No one has ever been able to demonstrate that a process of information dissemination and multilateral communication, combined with out-of-equilibrium transactions, could reach this “ideal market” of which Heath and Potter are speaking. Why? Because, as we saw earlier, the Arrow–Debreu model was constructed to answer a very restricted logical question, which can be recast here in terms of prices instead of messages: Does there exist a price vector such that, if it is already in place, isolated agents pursuing only their self-interest could carry out mutually compatible sales and consumption plans?

Here also, the mutual compatibility is never “willed” by any of the agents. By assumption, they are constitutively incapable of reflecting on this question, since their preferences include only their consumption of goods and services. If there is mutual compatibility, it flows from the equilibrium prices that already prevail—not only outside the real time and resources needed to organize exchange, but also and more importantly *outside the time and resources needed for reflection on the social whole*. The perfectly competitive equilibrium is a logical concept about which no plausible institutional or political narrative can be offered.

To put things bluntly, only the modeler knows that the equilibrium allocation is Pareto-efficient. For the individual agent *in* the model, there is only the experience of not feeling rationed in any market—she sells everything she wanted to sell and buys everything she intended to buy. At given prices, the Walrasian allocation is a Nash equilibrium, but even this escapes the awareness of the individual agent who merely observes his own absence of rationing. True enough, he might make himself even better off were he to contact other agents and to influence them in his favor, but the rules put into place by the government and its economic counselors (among whom, presumably, figure Heath and Potter) strictly forbid him from doing this. And anyway, this agent in fact has never even experienced what it would be like to perform an out-of-equilibrium transaction. There have never been, and there will never be, any prices other than these ones, and for him they are the only parameters he is programmed to react to.

To assert that this sort of automaton would have “voted” for a government which, advised by economists, would have put into place this particular “game” starting from a totally non-Walrasian situation is utterly meaningless. Unless, that is, you postulate that since he has never experienced anything else, the agent would tautologically “vote” for the only candidate he has ever known: the Walrasian “game”. But precisely, this is not a vote. It is validation routine for the status quo underpinned by no lucid and differentiated decision. In fact, it is crucial for the viability of the Walrasian model that none of the agents ever be aware of the whole strategy set, and hence of the non-equilibrium prices and opportunities, among which the Walrasian equilibrium is supposed to have been picked at some point in the past. If any of the agents were to realize the extent of the possibilities that he could have exploited to his own advantage, he would throw the whole model out of joint, and the model would be rendered meaningless “from the inside,” so to speak. We would then have a multitude of agents each trying, through a multitude of paths, to profit from the immense multitude of out-of-equilibrium transactions. Nothing—except perhaps the heroic assumptions suggested by Franklin Fisher (1983)—could ever guarantee that the sequence of their actions would some day reconverge on a lucidly shared and accepted, unanimous or even majority-supported, consensus as to the salience of the perfect-competition model compared with other possible models of economic organization.

This is what led Abba Lerner, already in the 1930s, to assert that the kind of economics alluded to by Heath and Potter had conquered its crown of “queen of the social sciences” by taking as its sole subject matter *solved political problems* (quoted in Bowles 2004: 1). In other words, *homo economicus* cannot be a social activist because the cognitive (in)capacities required for the Walrasian model to be self-consistent make him constitutively incapable of being a social activist.

It is awkward, therefore, to proceed like Heath and Potter and invoke this model—or, for that matter, any atomistic model—in order to call real-life people to organize collective actions. It is as if, at the end of a process of deep reflection on all sorts of options, we were to decide collectively to plunge into a mode of socioeconomic organization *that can function only if, once we have adopted it, we forever abandon any individual critical reflexivity*. Who amongst us would accept to undergo this sort of “lobotomy”—if not those of us who have never been anything but Walrasian *homines economici*? But assuming there are some of us who are like that, what good is collective action to them—if not, like the undead rising out of murky tombs, to “convince” all the others that it is better to be an adept of the Walrasian model than of any other model of the economy?

From homo economicus to homo criticus

Once you have opened Pandora’s box, it’s impossible to ever close it again. There are now two “camps” in my case study: those who want to promote the Walrasian model as an ideal to be constructed consciously, and those who are still doubting whether it is desirable. For Heath and Potter, all the members of this second camp, those who are doubting, are counterculture freaks such as Naomi Klein (2000) who, in spite of themselves, promote rivalry-based consumption and various other forms of sub-optimality. However, unfortunately for our two thinkers, there is—and they know it full well—a whole spectrum of economic models that reject today’s individualistic counterculture without necessarily embodying a Walrasian market model. They are all models requiring specific sets of social rules, but not necessarily those which Heath and Potter consider to be the only possible ones outside of countercultural anti-legalism.

One of the imperatives of the Enlightenment is that we should have the possibility of democratically exploring these theoretical alternatives to the “transparent market.” As I emphasized, many mainstream economists actually long for a non-capitalist, or even non-market economy. But if that is so, then they cannot as economists remain enclosed in approaches that, by construction, have agents interact within already solved political and theoretical problems. The shape of our societies’ “economic constitution” is one of the things that preoccupy rational economic agents who feel a concern for collective action. But if that is so, then these agents cannot possibly be modeled as balls that an informed elite of benevolent rulers and

disengaged economists can roll around on a table by designing for them certain *ad hoc* incentive mechanisms whose origin the agents are unaware of but whose effects they fully experience. Since atomistic *homo economicus* can never be a social activist, our models need to postulate in his place a non-atomistic *homo criticus et politicus*.

Clearly, Heath and Potter as well as Sen are political progressives. It is all the more striking that, because of the tools of economic analysis they use, their views of society share a neglect of the agents' use of *critical rationality*. They overlook the fact that in a truly liberating economy agents would have an ability to envisage normative goals and utopian settings and to take action in order to move society closer to these ideals. Agents use this critical rationality because of their experiences of social suffering, their care for the plight of others as a result of the unfair distribution of social power (see Arnsperger and Varoufakis 2003), their aspiration to a different kind of society, and so on. And using this critical rationality generates feelings of solidarity, it creates affinities and affective as well as rational cognition connected to the exercise of criticism. A theoretical setup that—because of its tools and concepts and quite regardless of the theorist's own convictions—simply erases all these aspects of socially embedded, emancipation-oriented, critical cognition is unconvincing.

Sen's as well as Heath and Potter's identification of radical social change and "political infeasibility" relies on precisely such an absurd setup. On the contrary, therefore, the political feasibility of a radical transformation inevitably implies the anthropological infeasibility of the market economy as presented in the standard theory. More generally, for radical social transformation to be thinkable within economics, the atomistic politology and anthropology of mainstream theory has to be questioned.

A constitutive impossibility

In fact, contrary to Heath and Potter, Sen has been involuntarily candid in this respect. By using the reference to "revolution" in an almost anecdotic way, and by rightly putting his finger on the issue of political feasibility in connection with the protection of historically inherited property rights, he has dealt a fatal blow to a theoretical setup in which, on other counts, he has indeed little faith (see, for example, Sen 1977). Since it is unable to account for the reasons why, and the way in which, individuals may radically alter their institutions, the standard model still used by so many economists nowadays to justify a certain economic and social order of society, folds in upon itself at the anthropological-cognitive juncture. One of the key insights of my discussion here is that no individual can ever meaningfully be, and can ever have meaningfully been, a Walrasian agent:

- Once they have participated in a process of reflexive social transformation, the individuals cannot go back to being Walrasian automata.

They have gone through experiences of strategic and emotional relationships which have deeply altered their cognitive structures even if they used to be automata before.

- But in fact, *even before* participating in the reflexive transformation process, these same individuals *cannot* have been Walrasian automata, either. That is because they must already have been endowed with the capacity to reflect on the just society, to debate by internalizing theoretical notions and concepts, to mobilize and coordinate so as to design the best means to their actions—all experiences already requiring the existence of substantial reflexive and critical dispositions.

Both points are, of course, interrelated. You can study the first without caring for the second, but if you neglect the second aspect you are bound to overlook something very important: the *social role of the economist* herself, the way in which the agents' reflexive and critical skills of economic theorizing are to be formed in a liberating economy. If *homo economicus* can never become a radical activist, which means that actual economic agents have never been, and can never become, Walrasian agents, what capacities need to be developed socially so that reflexive transformative agency can be a permanent possibility? What kind of approach to individual rationality is required if we are to eventually construct an economics in which the agents themselves—and not just the theorist—are endowed with, and are able to exercise, reflexive and critical social cognition?

Looking for *homo criticus*

One way to proceed within the standard paradigm might be to endow the agent with the ability to rank various mechanisms for distributing resources (of which the “market mechanism” is only one) as well as to rank various initial-endowment vectors for a given resource distribution mechanism. So to begin with, let's suppose that there is some list $S = \{s_1, s_2, \dots, s_H\}$ of possible systems s_h ($h = 1, \dots, H$) for organizing economic interactions starting from any given vector ω of initial endowments.

Suppose furthermore that each individual has formed a judgment about the relative merits of different possible arrangements. This requires, very importantly, that time and resources have been devoted *within the economy itself* to the formation of each agent's reflexive judgment. There have to be economists inside—and not just outside—the economy, there has to be communication between these economists and the agents, and there has to be communication among the agents. Assuming such a mechanism (about which we will say more in Chapters 6, 7, and 8), individual i 's *social-system meta-ranking* would then be a ranking of pairs (s_h, ω) , expressing the individual's—possibly complex and incomplete, but in any case lucid and reflexive—judgments about which socioeconomic system should “best” be combined with which vector of initial endowments.

One simple way of constructing this meta-ranking would be to separate distribution-related judgment from system-related judgment. In that case, individual i would have, on the one hand, a system-independent ranking R^{ω}_i of initial-endowment vectors and, on the other hand, an endowment-independent ranking R^s_i of socioeconomic systems. The two rankings would then be applied one after the other, with the order of application depending on the individual's basic attitude toward social issues. A *systems absolutist* will apply R^s_i before R^{ω}_i , thus determining first his preferred socioeconomic system and then determining the initial-endowment vector that will be preferable. An *endowments absolutist* will, in contrast, apply R^{ω}_i before R^s_i . In either case, of course, the independence of the two rankings implies that the top-ranked pair (s^*_i, ω^*_i) will be the same.

More generally, we can denote by $\rho = (s, \omega)$ any pair of a system and an endowment vector, and we can call ρ^*_i the top-ranked pair of individual i within his ranking R^{ρ}_i of all possible pairs. This preferred pair will be the one with reference to which i will seek to evaluate the most adequate practical means to be implemented in her action choices. Thus, from period to period, as the current state ω of society and hence also her desired system s changes, the individual will shape the critical theory that will guide her action in society.

This implies a break from the model as it is standardly presented. As we have seen, agents endowed with the individual capacity to rank vectors of resources and socioeconomic systems are very likely to question the basic rules that, at some point in time, shape economic interactions. If this is the case, then the standard economist's focus on any mode of socioeconomic organization (whether it be market coordination or socialist planning) should itself be *justified as the possible outcome of a process of interaction between critically rational economic agents (economists included)*. This is not being done because, as was repeatedly emphasized, *homo economicus* was never constructed to exercise critical rationality. As we will see in the next chapter, post-Walrasian neoclassicism as well as post-neoclassical mainstream economics have kept the same atomistic defect, despite their otherwise large differences from the old Walrasian framework.

3 Uncritical mass

The limits of complexity economics

The previous chapter ended on a somewhat unusual question: can the content of standard neoclassical models—both their implicit view of society *and* their implicit conception of “free” human agency—be justified as the possible outcome of a process of interaction between critically rational economic agents? Standard economists may have a hard time even seeing the meaning of this question. That is because their models rely on the assumption of what I called selectively open quasi-monads. As a result, they *de facto* endorse the kinds of awkward and incoherent deliberative processes I outlined when discussing Sen as well as Heath and Potter. In standard modeling, the market mechanism or Nash-equilibrium coordination enjoy a sort of a priori, almost “metaphysical,” status. This status originates from a specific imperative: the need to evacuate interactions from the models, as Alan Kirman, Brian Arthur, Steven Durlauf, William Brock, Robert Axtell, Jason Potts, and others have repeatedly noted. Therefore, standard economics introduces a wide rift between two very unbalanced “classes” of agents. Standard economics’ implicit view of the economy—a view that can only be inferred by looking at *the structure of the models*, not at economists’ often well-intentioned narratives—is a deeply segregated one, cognitively speaking. On the one hand, there are the theorist’s extensive cognitive and critical abilities. On the other hand, there are the small abilities she leaves to the agents she is modeling. Such a “rigged” form of economics can hardly qualify as an analytical device to model a genuinely liberating economy, can it? Unless, of course, we are prepared to call genuinely liberating an economy in which a small minority of agents (economists) build elaborate narratives about the huge majority (agents) who have no idea what these narratives are about, since by the minority’s own assumptions they are constitutively incapable of even inquiring about “meaning” and of reflecting on the economy.

The question tackled in this chapter is whether making economic models more interactive, as was done both by post-Walrasian neoclassical economics and by post-neoclassical “cognitive economics” and “complexity economics,” can help mend this defect. With the help of the heuristic developments provided by Chapter 2, we will see that this is not the case.

After taking stock of this fundamental internal limitation of the whole of mainstream theory, I will investigate in Chapter 4 what I take to be its deepest roots. These roots, it will turn out, have little to do with whether models are static or dynamic, interactive or non-interactive. The focus of debates within mainstream economics on whether “good” models should contain heterogeneous agents, endogenous preferences, and so on, will turn out to be pretty much beside the point. The crux of the matter, rather, will be seen to be the status given in *all* of mainstream economics to agents’ critical aspirations and reflexive efforts toward a better economy.

So in the end this chapter, like the previous one, is largely heuristic. It continues the task of clearing the ground begun in Chapter 2. Although here we will be dealing with much more cutting-edge stuff, the conclusions will be pretty much unchanged. As a result, Part I is mainly deconstructive. Part II, in turn, will launch the effort of reconstruction.

For the moment, let’s focus on the way in which complexity economics emerged from debates internal to standard neoclassical theory. The locus of debate here is the opposition between “top-down” interventions and “bottom-up” interactions. Even though, as just emphasized, this debate has no bearing on the central issue of what a genuinely liberating economy is, it’s important to understand exactly *why* this is so, since complexity economics is one of the hottest topics today in front-line mainstream research.

The bottom-up irrelevance of standard economics

According to noted historians of pre-classical and classical political economy (see, for example, Mirowski 1989; Hodgson 1993), the representation of the economy as a dynamic, nonlinear, interactive system of dynamic, nonlinear, interactive subsystems is older than the equilibrium approaches (see also Ormerod 1998; Beinhocker 2006). It was Smith and Mandeville who pioneered the idea of non-intentional aggregate results. According to this key idea, the *ex post* results of interaction are frequently foreign to the *ex ante* desires and intentions of the agents. Each agent wanted to get home quickly, but the result is a huge traffic jam. Aggregate outcomes can also fall short of the vistas and intentions of the theorist-modeler who, as policy advisor, often seeks to “channel” interacting agents toward one or the other collective objective. Policies are announced, then put into force, and outcomes are sometimes unexpected and even opposed to the desired direction of change. Hayek’s social ontology, as we will see in Chapter 4, centers on interaction between agents who carry localized and situated knowledge. It constitutes the final stone of this “bottom-up” edifice by providing the vision of a society that self-organizes into an emergent whole whose “quality” (measured by the degree to which individuals are able to “freely” market their specific knowledge) is all the higher if no member of the society, nor any coalition of members, can shape the order-producing rules. The Austrian position goes, among other things, against the optimistic

Keynesian constructivism that believes policies and, more generally, “top-down” actions can be more or less linearly translated into a desired outcome.

The widely shared belief that economic reality is nonlinear, interactive, and “processual” was eclipsed by another debate—namely, the debate between the Austrian School’s anti-formalism based on anti-interventionism, and the powerful attraction exerted on interventionist economists (Keynesian and neoclassical) by the formal methods of mechanics. The Vienna School, and Hayek in particular, combined an epistemology of localized individual knowledge, a liberal philosophy of procedural individual liberty, and a quasi-naturalistic rejection of any social constructivism. In this way, it could do away with the “bird’s-eye view” of the Keynesian or neoclassical theorist who aims to grasp interactive paths and the aggregate result of these paths. Not even the theorist can, according to Hayek, have access to the data that would make possible such a bird’s-eye view:

Such a social order will always constitute an adaptation to the multitude of circumstances which are known to all the members of [. . .] society taken together but which are not known to any one person.

(Hayek 1973–79: 44)

If we follow this clause of “not any one person,” it certainly seems that the neoclassical economists have tended to lapse into what Hayek (1952) calls the “abuse of reason.” This is mainly because of the tight connection between the neoclassical approach and the parts of the classical heritage (and later the Keynesian one) that aimed at optimally steering the social whole.

Classical economists certainly harbored the image of the theorist as a kind of “master of reality” who embraces the economy in his overarching gaze. As a result, they appear to have used various devices for the reduction of complexity and interactivity, which allowed them to use more mechanically oriented metaphors. With his theorization of labor-value and of the gravitation of market prices around the natural prices, Ricardo thought he could rely exclusively on macro-laws by implicitly taking for granted the heterogeneity of rational individuals in interaction. Heterogeneity was not denied or assumed away, but was simply rendered irrelevant by a “law of large numbers” analogous to the one later used by statistical mechanics. As for Marx, who was more interested in certain voluntaristic elements of the historical dynamics of systems, he did propose an explicitly interactive model of social struggle for material resources. However, again for purposes of “steering” the social process (in this case, the “proletarian revolution”), Marx mechanized his model into an extremely coarse-grained partition of the set of agents. He analytically singled out two or three classes of *representative agents*, or “average” agents, whose rudimentary rationality and sketchy interconnection he deemed sufficient for the construction of an

“interactive” theory of social change. At the same time, he claimed—without much specifying his statistical aggregation rules—that this interactive model could, in the end, be further mechanized into a virtually deterministic model of the macro-laws of history.

So it seems that Ricardo and Marx, more perhaps than Smith (but see Muller 1993), subscribed to the figure of an “all-knowing” theorist-modeler. This was someone who, even when he ended up recommending *laissez-faire* or a minimal State, had derived his recommendations from a cognitive position he shared with no other agent and which allowed him to speak in the name of the whole. As Hayek continually clamored, such a position of cognitive “overhang” could be maintained only at the cost of a modeling strategy that reduced the model’s interactivity to the point where “mastery on paper,” or later “mastery on the computer screen,” became possible.

By its insistence on “micro-foundations” and on the rigor of deductive reasoning based on basic entities, standard economics largely disqualified the more holistic or, at any rate, more *systemic* epistemologies of the classics. It paid mere lip service to interactivity but, at the concrete modeling stage, it relocated the interactive relations *within the individual agents*, now suitably redefined through an “independent-agent approximation.” This is where the extreme atomism of standard equilibrium theories can be found. Sunny Auyang has characterized this standard modeling trick as follows:

In short, independent individual models replace familiar relations among individuals by the response of each individual to a common situation, or statements of the form “Each individual x_i has character C_i and engages in relation R_{ij} to every individual x_j other than itself” by statements of the form “Each individual x_i has situated character C^*_i and responds to the situation S_i , which is a rule generated by and common to all individuals in the system.” The replacement eliminates the double indices in R_{ij} , which signify binary relations and cause most technical difficulties.

(Auyang 1998: 119)

Walrasian general equilibrium theory showed great prowess. It demonstrated the self-consistency of *competitive interactions* between non-critical, instrumentally rational agents by redescribing these agents as *non-interactive* maximizers who, by assumption, internalize in their calculations a “situation” or a “systemic constraint”—the vector of prices that determines all budget sets—and treat it as a vector of *situational parameters* to which each responds in isolation. By assumption, none of the agents knows that this systemic constraint is, in return, the result of all individual actions “put together.” The only agent who does know this is the theorist-modeler, whose epistemic monopoly therefore violates the Hayekian clause of “*not any one person.*” Of course, in this case the violation is assumed to have no impact since the theorist is not in the model. Standing outside of the economy

like a good traditional scientist (in the sense of Horkheimer), she fulfills her *one and only* social role, which is to understand how the systemic constraint can be a *self-consistent field* (see Potts 2000) such that, if the situational parameters of this field were known to the agents, their optimizing behavior would confirm these parameters.

This systemic constraint—the equilibrium price vector—is in fact an *emergent structure of the second degree*. If it is to be rationalized, it requires the implementation of the well-known set of Walrasian norms and institutions made up of (i) norms for the respect of buying and selling contacts, (ii) norms forbidding out-of-equilibrium transactions even if they are pairwise beneficial, and (iii) the problematic institution of the Walrasian “auctioneer” (see, for example, Kirman 1997), the last one coming complete will all the implicit norms requiring agents to come to the auction and to behave like isolated atoms. No agent shapes, or is even able to form the desire to shape, the systemic constraint and the way it emerges. By assumption, each atom internalizes the systemic constraint and “plays within it” with a view to maximizing its own interest (whether it be egoistic or altruist matters little, provided the required assumptions on individual preferences are satisfied). It is precisely this supposed internalization of situational parameters, which in fact emerge from within the system, that allows the atomistic, independent-agent approximation. It allows to treat the agents of the interaction *as if they were not interacting*, by artificially transforming direct and multilateral interaction into an indirect interaction via a common vector of situational variables. Auyang believes that if one explicitly recognizes the model to be using this independent-agent approximation, “ideological” confusion vanishes:

Since the competitive market model is an equilibrium theory that neglects dynamics, an auctioneer is invented to initiate and control price movements, enhancing the image of exogenous domination. [. . .] The individuals are easily mistaken for isolated beings and the situation is mistaken for an externally imposed institution or norm. Ideological disputes follow. [. . .] Systemic constraint makes sense, provided the endogenous nature of the situation is clarified. Unfortunately it is often not, so that one gets the wrong impression of society as a supra-individual entity imposed externally on all participants.

(Auyang 1998: 121)

In fact, this well-meaning declaration makes sense only if, as already emphasized in Chapter 2, we were able to solve what might be called the *puzzle of first-degree emergence*, which I formulate as follows. With what rationality do the agents need to be endowed if the norms and institutions implicit in the Walrasian model, as well as the decision to internalize these norms and institutions without further questioning them, are to be *chosen by the agents* as emerging from their social interactions?

The puzzle has not been solved by mainstream economics. Nor, however, has it been proven to be unsolvable. This book is, among other things, a proposal for starting to move in the direction of a solution. What seems clear, however, is that unless you impose as metaphysical dogmas the Walrasian anthropology and politology detailed in Chapter 2, the Walrasian norms and institutions have little or no chance of ever emerging from the interactions of agents endowed with critical rationality and able to reflect on what economy they want to inhabit. Most mainstream economists are probably aware of this. They just have not yet, I believe, taken full stock of what that awareness really implies. This has led to misleading changes inside the mainstream. On the basis of the “processual” weaknesses of the Walrasian model, standard economists have gradually shifted their attention toward alternative, *post-Walrasian* forms of modeling—most notably, cognitive economics and complexity economics. These alternative forms are certainly a progress over the older ones when assessed in terms of interactivity, and they have therefore made it possible to avoid what Paul Ormerod infamously called “the death of economics.” But it will turn out that in terms of their use as tools of social criticism and cognitive emancipation of citizens, these alternative forms are fraught with the same weaknesses as their predecessors. The independent-agent approximation, it turns out, is not the deepest flaw of standard atomism. Older and newer forms of mainstream economics share the weakness of positing agents as *ignorant* and *uncritical* atoms, whether they interact directly or only indirectly. It is on this shared weakness that this chapter will be focusing, whereas Chapter 4 will address the root causes of the defects uncovered here.

Post-Walrasian approaches

Before inaugurating the “complexity” era on which this chapter will mainly dwell, post-Walrasian mainstream modeling essentially came up with two distinct programs. The first program consisted in sticking to the strategy of independent-agent approximation but enhancing the content of the agents’ *parametric* rationality. This meant making the content of the situational parameters faced by isolated agents more complete. The second program consisted in giving up the independent-agent approximation and enhancing the content of the agents’ rationality. *Strategic* rationality displaced *parametric* rationality. This meant a more explicit interaction between “other-regarding” atoms, at least in principle. The monads went from self-enclosed to selectively open. Direct strategic interaction therefore meant that the artifice of a “common situation” was given up—with the implication that, here, the non-approximated system loses the symmetry of the approximated system, breaks down into densely interconnected subsystems or “clusters” more or less densely connected to other “clusters.” This implied that the effective heterogeneity of individual situations had to be explicitly taken into account.

- (i) *Rational Expectations.* The first of these two directions received its most famous embodiment in the form of the *theory of rational expectations*. It postulates that instead of taking as a situational parameter a vector of market prices, agents compute their instrumentally maximizing action *by taking as a point of reference the functioning of the whole economy*. In other words, each agent is endowed with a complete model of the economy in which he is interacting with all other agents, and agent i 's model x_i has as one of its parameters the fact that every agent $j \neq i$ is acting according to a model x_j and is informed that i will act according to x_i . Therefore, each model x_k ($k = 1, \dots, n$) contains itself as one of its own parameters, and also contains all the other models as parameters. The rational-expectations hypothesis postulates that each agent i maximizes his own instrumental interest all the better the closer his own model x_i is to the "true" model which can be written as a function $x^*(x_1, x_2, \dots, x_n)$. Therefore, every agent has an interest in possessing the "true" model which, should everyone possess it, would indeed self-realize: $x_i = x_j = x^*$ for all i and j . The (anti-Keynesian) policy implications drawn from this result by Muth, Lucas, and Sargent are well known. Here I am more interested in the fact that the agents seek to know the "true" model of the economy only because they figure that this knowledge will allow them to maximize their instrumental interest (again, whether egoistic or altruistic) given the knowledge of the other agents. It is the common knowledge of this rationality that renders the model x^* self-realizing because it is being adopted as a cognitive tool by all agents simultaneously. However, at no moment does the individual agent adopt a reflexive distance with respect to the economy x^* in which he is interacting with other model-using agents. Their relationship to the models they are using involves thought and computation, but it is *non-reflexive*. This doesn't mean that their instrumental calculations are not sophisticated or demanding—they are. But the agents' *whole* cognitive ability is sucked into the treatment of data from their environment in order to maximize their instrumental interest.
- (ii) *Non-cooperative games.* The same defects weigh down the other direction, the one that consists in taking explicit account of "face-to-face" interaction between the agents. As is postulated in most of the literature on equilibrium concepts, the agents jointly face a shared "game situation" in strategic or extensive form which they all know. Moreover, each of them knows that all others know it, and so on. Therefore, we are again back to a case resembling an isolated-agent approximation. Each agent, endowed with the game tree or the payment matrix, and also endowed with knowledge of the other agents' rationality (including the fact that the other agents know she knows about their own knowledge of her rationality), is able to "solve" the game in the same way as the theorist-modeler. That is, each agent is able to figure out what happens

when all agents simultaneously give their optimal responses to each others' optimal responses. True enough, in a certain sense the interactivity of the game situation is more directly "visible" than in the case of the Walrasian general-equilibrium model. Each agent can see on the tree or on the matrix that, in principle, other agents are able to *react* to her own action. The equilibrium is no longer mediated by an anonymous situational parameter. The interdependence *of the individual payments* is directly visible: except in games with a large number of players and with continuous payment functions, the assumption of common knowledge of instrumental rationality allows each player to measure on the tree or matrix the effect of her own change in strategy on the strategies of others, hence on her own payment. Nevertheless, first- and second-degree emergence remain problematic. Neither the particular game situations (second degree) nor the institutional mechanisms of adjudication and deliberation (first degree) that allow these game situations to emerge are themselves viewed as emerging from the interaction of agents. The players have no desire to shape the game situations and the social relations induced by the repeated practice of these games. Here again, at no moment does the individual agent adopt a reflexive distance with respect to the game rules in which he is interacting with other modeling agents. Their relationship to the game situations is *non-reflexive*.

We have just put our finger on a fundamental ambiguity of standard economics. On the one hand, it has a really hard time breaking out of independent-agent approximations. Non-interactivity creeps up again and again, as if it was needed—and it is indeed needed—for the models to be manageable and tractable. On the other hand, standard economics shies away from endowing its agents with critical and reflexive inclinations and skills. Non-reflexivity, too, creeps up again and again. It is even a constant feature of all mainstream models, whether interactive or not. The fundamental ambiguity is that standard theorists at the cutting edge of the profession have flocked toward innovations that deal with the first problem—non-interactivity—but no one has thought of addressing the second problem—non-criticality. *Could it be that we've been buying more interactivity at the cost of perpetuating non-criticality?* The result, at any rate, is an increasingly unbalanced mainstream. To understand its evolution, let's now spend some time dissecting the complexity approach.

The structure of complexity economics

The turn of mainstream economics to post-neoclassical, "complexity" theory (see Colander 2000) is due in large part to the increasing influence of both cognitive science in biology and psychology and bottom-up approaches in the explanation of "aggregate" phenomena, whether they are natural or social. The strong impact of cognitive science in economics (see, for

example, Simon 1996; Walliser 2000) is a symptom that the empiricist—Humean—component of mainstream atomism has crowded out the more rationalistic component. Local cognition and bounded rationality are seen as preferable to unbounded rationality.

In parallel with this development, mainstream economics increasingly combines evolutionary game theory and complexity theory in order to model emerging phenomena and qualitative leaps in dynamic trajectories (see Ball 2004; Mainzer 2004). The intent is to move away from independent-agent approximations and to really—finally—take the heterogeneity of automata and their direct interactions seriously (see, for example, Gallegati *et al.* 2004). As Sunny Auyang has described the project:

Large-scale composition is especially interesting because it produces high complexity and limitless possibility. [. . .] Myriad individuals organize themselves into a dynamic, volatile, and adaptive system that, although responsive to the external environment, evolves mainly according to its intricate internal structure generated by the relations among its constituents. In the sea of possibilities produced by large-scale composition, the scope of even our most general theories is like a vessel. [. . .] Large composite systems are variegated and full of surprises. Perhaps the most wonderful is that despite their complexity on the small scale, sometimes they crystallize into large-scale patterns that can be conceptualized rather simply [. . .]. These salient patterns are the emergent properties of compounds. Emergent properties manifest not so much the material bases of compounds as how the material is organized. Belonging to the structural aspect of the compounds, they are totally disparate from the properties of the constituents, and the concepts about them are paradoxical when applied to the constituents.

(Auyang 1998: 1–2)

The complex economy as a self-discovering system

We have already seen that standard equilibrium analysis, of which general equilibrium theory is a subset, implicitly relies on interactions between agents (since prices emerge) but carries out an independent-individual approximation. Through the feedback via prices, individual decision is modeled *as if* the individuals had relinquished disequilibrium price trading and other non-equilibrium actions. In fact, all the theory is really able to describe is the mutual compatibility of plans *at equilibrium prices*, or more generally (in game theory) the mutual compatibility of strategies *at a Nash equilibrium*. In other words, interactions are “in there,” they are not denied but they are made implicit and assumed away. Taken literally, the “*as if*” narrative accompanying equilibrium models usually makes for fanciful and self-contradictory institutional Towers of Babel. For instance, the narrative

of a centralizing “auctioneer” needs to be grafted onto the Walrasian formalism of decentralized “trade.” Such a focus on equilibrium theory is one of the reasons why standard economics has long privileged the economy as an *allocation device* over another figure, that of the economy as a *collective exploration device* (see Potts 2000). The independent-agent formalism can in fact support neither interactive resource allocation nor interactive exploration, but as Potts has shown, allocation can for better or for worse be mimicked by a non-interactive, “full-field” fiction whereas exploration is intrinsically an “incomplete-network” affair.

Now, if any historically inherited allocation mechanism or economic system is to be viewed as a “superior” system in some sense, this alleged superiority has itself to be accounted for through a collective exploration process. This should not be just any process. It has to be a *process of critically driven reflection* by which economic rules and institutions arise, albeit in a partly unintended way, from the interactive exploration by *agents who have a conscious normative orientation* and do not merely pursue momentary necessities. The mainstream work recently done on market emergence (see, for example, North 1981, 1990; Platteau 2000: 241–80) does not satisfy this condition. It models institutional dynamics as the unintended result of largely *unreflexive* interactions between agents who are following everyday-life rules designed to ensure their own and their families’ fitness or survival. This is innovative work within the current orientation of the mainstream, in the sense that it appropriately treats the economy as a complex adaptive system. But, as I will argue in Parts II and III, it falls short of the full potential that could be unleashed in the complexity approach *if we also addressed the problem of the agents’ critical reflexivity, instead of merely the problem of their adaptive interactivity.*

The “complexity approach” has today become intimately connected with the name of the Santa Fe Institute and its exploration of complexity in all its dimensions (see, for example, Waldrop 1992; Arthur *et al.* 1997b; Brock 2000). In a groundbreaking book entitled *Harnessing Complexity* and perhaps the most vivid attempt to understand our economic world on the basis of complexity since Herbert Simon’s *Sciences of the Artificial* (Simon 1996), Robert Axelrod and Michael Cohen claim that today’s overarching concept for an economic context is that of a *complex adaptive system*:

Whether or not we are aware of it, we all intervene in complex systems. We design new objects or new strategies for action. [. . .] Whether simple or sophisticated, such actions change the world and [. . .] lead to consequences that may be hard to imagine in advance. [. . .] The complexity of the world is real. We do not know how to make it disappear. [. . .] For us, “complexity” does not simply denote “many moving parts.” Instead, complexity indicates that the system consists of parts which interact in ways that heavily influence the probabilities of

later events. Complexity often results in features, called emergent properties, which are properties of the system that the separate parts do not have.

(Axelrod and Cohen 2000: 1–2 and 15)

Recapitulating some of the pioneering research of John Holland (1995) and others at Santa Fe, the authors offer the following definition of such a system:

Agents, of a variety of types, use their strategies, in patterned interaction, with each other and with artifacts. Performance measures on the resulting events drive the selection of agents and/or strategies through processes of error-prone copying and recombination, thus changing the frequencies of the types in the system.

(Axelrod and Cohen 2000: 154)

Let's represent the network of connections by a directed graph G . Assume that G possesses operational closure so as to be called a *system*. The agents i, j, \dots that make up the vertices of G interact through strong connections (which is one of the conditions for operational closure) by individually using various elements drawn from three sets of rules. There is a set $R1$ of *interaction rules* which are particular ways of realizing, activating, or deactivating, the various available connections between vertices. There is a set $R2$ of *credit-attribution rules* which allow the agent to evaluate the relative success or failure of her actions. Finally, there is a set $R3$ of *revision rules* by which the agent modifies her interaction rules in the hope of obtaining higher credit in the next round of interactions. Such a system is complex if the interactions between agents generate so-called *emergent properties* that are more than just the sum of all individual-level properties. In other words, individual actions aggregate in nonlinear fashion through interaction. The system is *adaptive* in a twofold sense: (a) the emergent properties of interaction generate certain *credit* measures (profit, fitness, etc.) which may allow the agents to learn from mistakes and successes, and (b) perceived lack or loss of credit may trigger *adaptation*, i.e., a change in agents' interaction rules.

To the mainstream economists, a key element in such a system is that non-trivial aggregate behavior—or *systemic behavior*—can be generated by trivial rules in $R1$, $R2$ and/or $R3$. Agents may be endowed with bounded rationality, such as myopic horizon, small calculative abilities, simple routines, or rules of thumb. They may base their behavior on expectations which may not at all be consistent with past observations. They may, for all practical purposes, be downright “idiots” in the neutral sense of the word—entities limited to extremely narrow procedures and routines. And still, they may interact to produce very elaborate-looking patterns in certain aggregate variables such as share prices, inflation rates, or attendance of a nightclub. Complexity theorists pride themselves of having dispelled the illusion that

to generate such intricate patterns as can be viewed in nature (Ball 1999) or in social settings (Ball 2004; Beinhocker 2006), there has to be either an omniscient designer or a cognitively sophisticated population. Indeed, one of the reasons for the humanistic pride that had come along with the Enlightenment seems to vanish into thin air. To “explain” the emergence of aggregate sophistication, none of man’s hard-earned capacities for reasoning, criticism, abstraction, calculation, and so on, are *really necessary*. The individual subject—if it can still be called that—can be viewed as a machine made up of exceedingly simple subroutines, and sophistication nevertheless comes out in aggregate-scale, “subjectless processes” (Dupuy 2002a).

If first- and second-generation cybernetics hadn’t reduced metaphysics to a kind of “surface noise” in a subjectless system, you could almost say that the Santa Fe vision conveys a metaphysics of unintended collective discovery. Complexity economics is underpinned by a view of the economy as a *self-discovering system*. Even the most spectacular innovations and novelties arise out of the agents’ mere attempts—sometimes successful, often failed (see Ormerod 2005)—to survive the adaptive tasks bestowed upon each of them by the aggregate of them. At each step, each of them can marvel at what they had not even dreamed some of them would discover or invent because of systemic pressure, but the next step is as radically uncertain as the previous one because, as a result of multifarious adaptations, the systemic pressure shifts constantly. This view of the self-discovering economy owes significantly more to Hayek than to the standard economic approach. In fact, complexity economics should be interpreted as the attempt by the orthodox paradigm to recover from the formerly “heterodox” critique of orthodox economics which Hayek had expressed in his article on “The Use of Knowledge in Society” (Hayek 1945b).

What do boundedly rational automata learn in interactions?

The two keys to understanding how agents adapt in a complex adaptive system are the notions of an *internal model* (Holland 1995: 57–60; Potts 2000: 173–9) and of *credit attribution* (Holland 1995: 53–6; Axelrod and Cohen 2000: 136–43). They are closely linked, in the sense that the agent is assumed to use his internal model to undertake actions whose high or low credit value subsequently may lead him to partly modify the internal model.

An internal model is an evolving module in any agent’s cognitive setup. It represents that agent’s more or less formalized, more or less exhaustive, and more or less rigorously scientific view of the array of situations in which he believes he can find himself. This array is formed either on the basis of the agent’s own past experience in the interaction, or on the basis of the experience communicated by other agents through the interaction. A boundedly rational agent will obviously not deduce his decision rules from an “overall model” of the whole economy, be it only because of the cognitive limitations he experiences or of the enormous cost of acquisition of expertise on

this full-scale model, if it existed. Moreover, such an agent will not usually submit his partial internal model to the most extensive inter-subjective testing available at any moment, since experience is itself a way of spreading the testing costs over time and economizing on testing as long as things don't go too wrong.

An action that “goes too wrong” means simply an action that fails to fulfill the agent's aim as measured by his own interests. This failure implies that the action is given a low credit value. The agent's interest consists in accumulating high credit, or at least sufficient credit (as in Simon's approach of “satisficing”), in order to survive according to the system's norms of evaluation. Therefore, a low credit value signals to the agent that he must learn quickly if he wants to stay on board. There are essentially three ways in which learning will affect the internal model:

- 1 Suppose the model is used by the agent as a *credit prediction device*. This means the internal model is a cognitive tool that yields an expectation of the credit value of the agent's action in a perfectly defined momentary context. In that case, failure implies that the internal model has to be modified in congruence with what the agent believes will be his future (also perfectly defined) context. In other words, he needs to change his internal model contingent on his expectation of the new situation with which it will have to help him cope. (The extent to which this will have to be done obviously depends in part on how “flexible” or “open-ended” the internal model is.)
- 2 Suppose the internal model is used by the agent as a *situation interpretation device*. This means it is a hermeneutic tool that yields a description of the momentary context in which the agent will have to maximize a perfectly defined credit function. In that case, failure implies that the internal model has to be modified so as to provide a less incongruous description of the future context—independently of how the credit function to be maximized will evolve into the next period.
- 3 Suppose finally, as is most likely, that the internal model is used to do both 1 and 2. This means that neither the situational context nor the expectation function are well-defined. In that case, subtle practical judgment is required to understand the reasons of the failure and, hence, the direction in which to look for improvement.

Either of the three improvements is carried out through direct or indirect interaction with other, similarly struggling agents. Experiences are shared, “best practices” are pooled, and so on.

It is crucial to realize that the agent's perception of his action's credit value is clearly a *situated* perception. So is his perception of his consequent need for a modified internal model. Maybe he truly doesn't realize that the locally perceived signal comes to him from a subjectless, emergent aggregate phenomenon. Or maybe he does realize it, but he decides he has no choice

anyway. In either case, the adaptive consequences are exactly the same. This means that the agent's awareness of the "origin" of the perceived failure or success in no way affects the subsequent adaptive sequence. The reason is that not only the triggering signal, but also the ensuing criteria for a better adaptation, are considered to flow from the emergent phenomenon. This explains why, at the beginning of Chapter 1, I as your fictitious friend was adamant that I did not *want* to reflect on the broader "why" of my action. I simply felt it was useless, given that the subjectless emergent phenomenon (of which I was perhaps acutely aware) "was what it was." In the complexity approach, the agent's behavior is *passive* in a paradoxical sense. He is passive *because* he is purposefully, actively, "busily" adapting to emergent signals whose genesis he uncritically accepts because these signals are "given."

This suggests that in a complex adaptive system you can, as an individual agent, be "busily passive." It all depends on how, in your busyness, you stand toward the emergent phenomena. Axelrod and Cohen define "harnessing complexity" as "seeking to improve but without being able to fully control." They view it as "a device for channeling the complexity of a social system into desirable change, just as a harness focuses the energy of a horse into the useful motion of a wagon or a plow" (Axelrod and Cohen 2000: xvi and 2). They suggest three key questions which, according to them, summarize these instrumental strategies:

- 1 What is the adequate balance between diversity and uniformity?
- 2 What should interact with what, and when?
- 3 Which agents or strategies should be copied and which should be destroyed? (See Axelrod and Cohen 2000: 22–3)

They then offer eight practical principles for the rational agent who—provided she has any power to intervene in the system at the right levels—wishes to optimally manipulate the prevailing complexity:

- (I) Arrange organizational routines to generate a good balance between exploration and exploitation.
- (II) Link processes that generate extreme variation to processes that select with few mistakes in the attribution of credit.
- (III) Build networks of reciprocal interaction that foster trust and cooperation.
- (IV) Assess strategies in light of how their consequences can spread.
- (V) Promote effective neighborhoods.
- (VI) Do not sow large failures when reaping small efficiencies.
- (VII) Use social activity to support the growth and spread of valued criteria.
- (VIII) Look for shorter-term, finer-grained measures of success that can usefully stand in for longer-run, broader goals. (See Axelrod and Cohen 2000: 156–8)

Axelrod and Cohen establish this list partly on an inductive basis, using concrete examples of successful instrumentalizations of a complex system, and partly on a deductive basis, using the general abstract properties of complex adaptive systems.

In the survival-oriented adaptations reviewed here, the emergent signal is taken as an imperative “message” from the environment that you’d better learn something quick. This corresponds to what I would call *opportunistic harnessing*. Given the directed graph(s) defining the interaction pattern(s) in the system and the motivations that generate flows between nodes of the graph(s), the agent takes the courses of action which best cohere with his *unreflected* idea of freedom. An agent’s idea of freedom is unreflected when it merely spontaneously corresponds with the overall logic inherent in interaction patterns and motivations, as well as the agent’s location in the directed graph(s). Thus, as long as the agent takes part in the interaction unreflexively, i.e., as long as he takes as given the modes of interaction and of credit attribution to actions, even his most sophisticated instrumental calculations will boil down to mere adaptation to the “circumstances of change.” This means first and foremost an opportunistic harnessing of the complexity of the system or of the various subsystems in which the agent is embedded.

Today’s widespread discourse on “flexibility” in organizations relies on this kind of harnessing. A significant portion of the management literature even values opportunistic harnessing when it comes to normatively prescribing the “right” actions (see, for example, Crozier and Friedberg 1977, and their notion of “uncertainty zones” in power games inside firms). This doesn’t preclude, of course, the possibility of errors in calculation. Some mainstream economists have recently begun to wonder whether, for instance, the Savage axioms of choice under uncertainty could be adapted to individual-choice situations in complex interactive universes (see Aumann and Drèze 2005).

In this opportunistic type of harnessing, each individual asks herself, “How can I be freer in the social system as it operates?” But being free here means, essentially, being able to continue surviving or to reactively fit in with the emergent phenomena. These are not, as we will see in Part II, the only ways of characterizing an individual’s efforts to harness the complexity of the economic system.

Aggregate behavior: emergent properties and “critical mass”

An enduringly fascinating aspect of complex adaptive systems is that even such passive, mechanical rule-following adaptation on the part of the individuals can generate aggregate emergents whose behavior is far from simplistic and doesn’t just reproduce at the aggregate level the mechanical rules used at the sub-aggregate level. As is well known, this is in fact one of the hallmarks of complexity models:

Agents adapt—they are not devoid of rationality—but they are not hyper-rational. They look around them, they gather information, and they act fairly sensibly on the basis of their information most of the time. In short, *they are recognizably human*. Even in such “low-rationality” environments, one can say a good deal about the institutions (equilibria) that emerge over time. In fact, these institutions are precisely those that are predicted by high-rationality theories [. . .]. In brief, evolutionary forces often *substitute* for high (and implausible) degrees of individual rationality when the adaptive process has enough time to unfold.

(Young 1998: 5)

Krugman (1997) has shown that a purely mechanistic aggregate-level model of a two-sector region can generate critical-mass behavior as a result of nonlinearity. If the range of products produced locally is a function of the size of the local market, the income–export base relationship displays two stable branches overlapping over a “meta-stable” interval. At some critical level of the export base, slowly falling income drops brutally; at another critical level, slowly rising income jumps up discontinuously. For a policy-maker concerned only with increasing aggregate income, this relationship may be sufficient knowledge, independently of how each individual inhabitant of the region feels about rising income and the human costs it may involve.

Brock and Durlauf (2001) have demonstrated that the social-conformity component of an individual’s interest may very well override her private component. Thus, on the sole basis of very general knowledge about the statistical distribution of individual decision errors and about the size of imitation effects across individuals (and no precise knowledge of their motivations), it can be shown that there is a certain threshold beyond which one finds “the potential for collectively undesirable behavior, such as out-of-wedlock birth rates, which is individually optimal” (Durlauf 1997: 88). Note that whereas some of the results in that literature can be considered trivial in the sense that they remind us of classical stationary-state results, here we have non-stationary models in which critical mass leads to phase transitions or in which standard equilibrium results are generalized through what Durlauf calls “stochastic generalization.”

Such rudimentary models are fine if you are hell-bent on parsimony in explanation—especially if the behavior of the aggregate matters more to you than the understanding of individual particles’ trajectories (see Auyang 1998: 50). They are also fine if you are not an Enlightenment humanist and if you believe the central task of social science is to understand what can hold together a collection of blind or strongly myopic automata (Ball 2004: 7–37). But they are far from satisfactory if you believe it’s more important to understand how reflexive people could become enlightened so as not to blindly or myopically reproduce old, recurrent patterns (Varela *et al.* 1991: 245–54; Dupuy 2002a: 15–22), or to understand why people in a given economy aren’t at present sufficiently reflexive.

This cognitive and reflexive minimalism is one of the cornerstones of atomistic standard economics. It has clearly slipped over into significant parts of complexity economics. Put rather abruptly, its core question is: What are the most idiotic and unsophisticated agents “we” can assume so that the aggregate phenomena “we” (but, by construction, *not the agents*) find important can be accounted for? This move resembles Laplace’s attitude. To clerics tempted to merge science with theology, he declared God an “unnecessary assumption.” Two and a half centuries ago, this could certainly stand as a humanistic stance. Today, it seems to have inverted into an anthropological dogma. Herbert Simon’s notion of bounded rationality is certainly a credible alternative to neoclassical hyper-rationality, which postulates that each agent has the brain of a Gary Kasparov. Yet, this hardly justifies an enduring fascination with emergence out of interacting idiots. To the extent that the agent is treated like a sophisticated grain of sand or a self-propelled billiard ball, the notion of “critical mass” that complexity theorists want to convey is fascinating but ultimately technocratic. The mastering of scaling laws and pattern-generating mechanisms is mainly useful for city planners, park and museum designers, or other professional planning experts who have learnt that well set-up incentives are much less self-defeating than attempts at outright control (see Ball 2004: 156–82).

Does this mean complexity economics is useless? Of course not. It’s true that a limited number of contexts really *do* require little or no knowledge about “authentic human aspirations” and can be carried out much more easily—some would even claim, with much more humanistic open-mindedness—if one can isolate the “idiotic automaton” (sometimes also called the “automatic pilot”) that coexists in each of us along with our more grand aspects. Critically minded people with a broad range of motivations may still maniacally invest in the stock market. Highly reflexive people with very diverse aims in mind may still routinely walk through Central Park every day. Social activists and humanists may still single-mindedly drive their cars through city avenues and into traffic jams. In these specific, limited contexts it does indeed seem useful to be able to explain the formation of a “critical mass” with the tools of cellular automata, of the mechanics of gases, or of condensed-matter physics.

The striking thing about mainstream complexity economics is that it insists *both* on the importance of modeling interaction (so that it rejects traditional equilibrium theories’ strategy of independent-agent approximation) *and* on the possibility of dispensing with the interacting components’ reasoning and reflexivity. This gives the whole research area an aspect indeed well captured by Ball’s (2004) expression of “social physics.” Society is a more or less sophisticated pile of grains of sand. The following two passages illustrate both the potential and the limitations of the approach:

In a system of interacting agents, emergent properties are those that cannot be reduced to statements about the individual elements when

studied in isolation. [. . .] One important aspect of emergence is that it breaks any logical relationship between methodological individualism and reductionism. What I mean is that emergent properties cannot be understood through the individual elements of a system, as they are intrinsically collective. This is so even though the behaviors of these elements determine whether or not emergent properties are present.

(Durlauf 2002: 71–2)

Think of a pile of sand on a table that has a continuous flow of sand falling on the top of the pile. For a while, the sand builds up into a large conical sandpile, but at periodic times, when the sandpile builds up to what Bak (1996) calls self-organized criticality, there is an avalanche or series of avalanches until the pile “relaxes” back to a state where avalanches cease. The distribution of sizes and “relaxation times” of these avalanches follows scaling law patterns, e.g., Zipf’s law, Pareto’s law, power law, etc. The study of complexity tries to understand the forces that underlie the patterns or scaling laws that develop.

(Brock 2000: 30)

Critical mass, here, is an aggregate phenomenon which the theory seeks to explain without endowing the grains of sand with more than the physical properties (attraction, repulsion, and so on) required to explain the observed aggregate. This means that complexity economics will be interested essentially in empirically observable and “persistent” patterns, as characterized by John Holland:

Emergence occurs in systems that are generated. The systems are composed of copies of a relatively small number of components that obey simple laws. Typically these copies are interconnected to form an array [. . .] that may change over time under control of the transition function. The whole is more than the sum of the parts in these generated systems. The interactions between the parts are nonlinear, so the overall behavior *cannot* be obtained by summing the behaviors of the isolated components. Said another way, there are regularities in system behavior that are not revealed by direct inspection of the laws satisfied by the components. [. . .] Emergent phenomena in generated systems are, typically, persistent patterns with changing components. Emergent phenomena recall the standing wave that forms in front of a rock in a fast-moving stream, where the water particles are constantly changing though the pattern persists [. . .]. Persistent patterns often satisfy macrolaws. When a macrolaw can be formulated, the behavior of the whole pattern can be described without recourse to the microlaws (generators and constraints) that determine the behavior of its components. Macrolaws are typically simple relative to the behavioral details of the component elements.

(Holland 1998: 225–7 *passim*)

In Parts II and III, I will scrutinize the complexity approach for its underused potentials. Its main current shortcomings derive from what I would call its “macrolaw fetishism” and its “attraction to cognitive idiocy.” As we will see, trying to overcome these limitations mainly involves re-introducing a form of critical humanism that makes the grains of sand capable of reflecting. In a “sandpile” made up of actual humans, people are bound to reflect on how they feel about arriving in a constant flow onto the pile, propelled by forces they’d want to understand and—why not?—modify. Human “grains of sand” experience attraction, repulsion, and other forms of interactively generated reflection and criticism. To the extent they’re really, fully human, they can’t avoid thinking—be it only dreaming—about what would make their “sandpile” less avalanche-prone, or prone to better kinds of avalanches. In short, the idea in Parts II and III will be to exploit the complexity approach differently in order to go from the mechanistic notion of a *critical mass* to the humanistic notion of a *mass of critics*.

As it stands, however, the approach falls way short of such a humanistic project. In a sense, for all their pretense of being “scientific,” from a humanistic perspective bounded-rationality economics and complexity theory represent a regression compared with the Walrasian set-up. These new research projects have even more tenuous links with Enlightenment emancipation than was the case (as argued in Chapter 2) for the “old” mainstream. In the last portion of this chapter, let’s reflect on what makes even the most cutting-edge complexity economics a non-emancipatory, and perhaps even anti-emancipatory, discipline.

The suicide of the critical subject

My perception of the current state of the profession is the following. The agents’ bounded rationality, or even downright idiocy, can safely be assumed as long as the very core of atomist modeling is safeguarded—that is, as long as the theorist’s project of a bird’s-eye embrace of the social process is upheld. To say it another way, as long as the *economist* is endowed with critical rationality and an intensely enlightened awareness of his status as the All-Knowing Subject, the economic agents can degenerate into non-computing, mechanical, nearly idiotic quasi-monads: “science” will be safe. Analogously to what we saw in Chapter 2, the issue then becomes whether the economist’s portrayal of economic agency could stand up to the critical scrutiny of the agents who are being modeled. In other words, can the “complexity” figure of *homo economicus* be subjectively internalized and accepted by *homo criticus*?

Homo economicus between subject and object

A frequent criticism of standard economics is that the figure of *homo economicus* is, in some sense, dehumanized or insufficiently human. We citizens,

it is often said, shouldn't let economists describe us in such appalling terms, lest politicians and other decision-makers actually start treating us as if we were the mechanistic automata postulated by the theory. Our authentic human subjectivity, so the critique goes, ought to be "protected" from the minimalist psychological and behavioral features of this formal entity. As I just indicated, I agree with this criticism. However, it needs to be fleshed out by some philosophical work—a bit more so than what we've done up to now.

When we claim that mainstream *homo economicus* is a figure that is incompatible with authentic subjectivity, we are postulating that there are actually two distinct and opposed figures involved. On the one hand, there is "the subject" with its long history in Western philosophy (see, for example, Renaut 1987). On the other hand, there is "economic man," who also belongs to a long tradition (see, for example, Demeulenaere 1997). We are postulating that the former ought somehow to be "safeguarded" from the latter. This, in turn, means that we are invoking either an ontological-normative argument or a psychological argument.

- *Ontological argument:* Despite his rhetorical designation as "human," *homo economicus* is in actual fact the figure of an *object* rather than a subject. The word *homo* is nothing but a vacuous metaphor. The critique then says that we need to keep authentic subjectivity from "degenerating" into such an object.
- *Psychological argument:* No, *homo economicus* is indeed a figure of a subject, but he represents a *form* of subjectivity to which we ought to prefer *other forms*. Instead of striving to be like *homo economicus*, which is a human possibility but a very unpalatable one, we should "socially produce" human subjects who are more happy, more authentic, more human, and so on.

Can the theoretical figure of *homo economicus* be that of a *subject*? In his book on the figure of *homo economicus*, Pierre Demeulenaere (1997) does not address this question directly, but he indicates that

The specificity of economics, as well as of the other social sciences, is that its object of investigation is human action. [. . .] These actions are [. . .] necessarily endowed with a real autonomy, revealed by the practice of acting individuals.

(Demeulenaere 1997: 2)

Note carefully, however, that what Demeulenaere is speaking about here is the "real autonomy" *of action*, hence of the agent. He is not, emphatically, speaking about any sort of subjectivity that might be connected to the action. The theoretical figure of *homo economicus* deals with action as an object to be explained by economics. Nowhere is it said that *homo economicus*,

i.e., the agent, is also the *subject* of her action. As could already be inferred from my discussion of social activism in Chapter 2, the narratives of standard theory do not presuppose any necessary process whereby a subjectivity would be constituted.

The maximizing agent may be a mere *object*, in the sense that he is endowed with *individuality*. That is, he may be construed as (i) a point of passage of aggregate mechanisms and (ii) a basic building block of processes that (re)compose aggregate phenomena. But none of these features of individuality exclude that the agent may be *acted on by* a set of (past and/or contemporary) external and (past) internal causalities. Such causalities may embed the agent's *individual but non-subjective* action into a *self-referential system of action*.

So there is in principle a disjunction between the individual agent and the (human) subject. Once we accept this we can, as complexity economics has done, insert *homo economicus* into a global systemic theory. This theory, as we saw, may be sophisticated and full of complex emergent phenomena, constructing aggregate states by closure through the interaction of what systems theorists call “non-trivial machines” or “finite-state automata” (see Dupuy 2002a: 46). As we have seen repeatedly over the course of Chapters 2 and 3, mainstream economics offers the representation of an economy peopled by maximizing automata, each of whom, operating at the “places” successively attributed to it by its rule-driven adaptation within the overall system, contributes to a highly complex interaction *from which all subjectivity is absent* and is replaced, inside each automaton, by an “internal state” generated by a double feedback from the current aggregate state and from the past internal state. Therefore, regardless of how frequently it uses the words “human action” and “free decision,” such a theory *actually* represents agents as *individual non-subjects*—namely, as mere “points of passage” between an incoming feedback force and an outgoing individual signal. “Adaptation” here means the flick of an inner switch or lever activated by the automaton's inner model.

The reason why there is no subjectivity here is that the adaptive individual can never be its own object of reflection. It can never *project* its unfolding from its own center. It doesn't have projects and doesn't think or dream about a better way of being human or about a better way of interacting with others in the economy. On the contrary, the adaptive individual constantly becomes the object of all forces that are not, or no longer, itself. It is unable *not to adapt*. Subjectivity is the “blind spot” of mainstream models even in complexity economics. Therefore, the effort by mainstream economists in order to go from pre-complexity to complexity theory will always fall short of introducing real human subjectivity as long as they remain attracted to the theory of complex *adaptive* systems. (In this book, the problem is atomism and the consistent neglect of individuals' reflexive and critical capacities. The problem is not mathematics. It may well be that, on closer analysis, mathematical formalism is what makes subjectivity

impossible. But this issue lies outside the scope of my discussion. I will be using mathematical formalism myself in Parts II, III, and IV. For a critique of mathematical formalism, see Lawson 2003, Chapter 10.)

Could the adaptive automata-individuals of mainstream theory ever be apprehended as authentic subjects? Suppose the theorist-modeler could communicate with the empirical human beings he is modeling. Let's call them "persons" in order to distinguish them *ex ante* from the automatic individuals or the authentic subjects they might make themselves into. The theorist could represent these persons as automata-individuals if she could prove that she successfully submitted them to the following sequence of operations:

- A The modeler addresses each of the persons and shows him model *X* with its adaptive automata-individuals and displays its functioning and its results.
- B The modeler asks each of the addressees if he recognizes himself in this model of adaptive automata-individuals. If he doesn't, she asks the addressee if after the presentation of model *X* he would be prepared to conform his "internal model" to the assumptions made in *X* about the structure of individual "action."
- C Each addressee performs his subjective judgment and freely decides, after due reflection, after critical interaction with other addressees, and so on, that he will henceforth conform with the assumptions of *X*. He is able to reflexively formulate the reasons which led him to this free decision.
- D Steps A, B, and C are performed by each of the persons modeled in *X*. In particular, if it is a model of the "whole society," steps A, B, and C are performed by *all* members of society, without any exception.

If these four procedural steps have been fulfilled, the theorist can assert that the adaptive automata-individuals of model *X* are also subjects. In other words, the "descriptive" aim of an economic model can only be fully legitimate if the description—i.e., the world and the agents as seen from the side of the theorist—can be reflexively re-appropriated by the persons and subjectively validated by them as being part of their *existential projects* (see, for example, Arnsperger 2003a). Thus, in particular, the figure of *homo economicus* will be that of a subject if it can be shown that there exists *in the empirical social world* a set of persons—whose numbers, characteristics and interaction structures have to coincide very precisely with what the model requires—who "validate" this figure by subjectively internalizing its attributes, characteristics, etc., as an adaptive automaton. So in order for us to be able to consider *homo economicus* as an entity endowed with subjectivity, the model would necessarily have to "pass through" or "be embodied by" a group of empirical persons *of equal dimension to that of the model*, so that each of these empirical persons would adopt this theoretical figure as a subjective element of her own existential project.

Could homo economicus become an empirical reality?

If it occurred at all—which, as I will explain shortly, is highly doubtful—this subjective adherence to the *homo economicus* figure would occur through at least two channels which, upon reflection, turn out to be very closely connected. On the one hand, “we” could (as some classical economists such as Mill certainly did, and as some mainstreamers nowadays still do) put forward the figure of *homo economicus* as an *abstract* but—precisely because of this abstraction—*essentially descriptive* figure. On the other hand, “we” might create interaction rules and behavioral norms that would gradually induce persons to become adaptive automata because that would be the *only livable way* of going about any existential project. In other words, might it not be possible to create the initial conditions—in terms of education, interaction norms, rules of conduct, and so on—that would make the figure of *homo economicus* self-realizing? Could “we” not, by *pre-supposing* this adaptive automaton at all key junctures of our description of the economy, make it *materialize* in the economy?

This looks like pure science fiction. In addition, and crucially, who is the “we” I have put between quotation marks in the preceding paragraph? The answer is “We” are the economists when they posit allegedly descriptive assumptions. When you write down a complex adaptive model with automata to describe some subset of an economy, you momentarily become able to decide what people are like. You write your model as if the agents in it had decided to be automata, or as if you had had the power to make them into automata. Descriptively the result is the same: “we” use the figure of *homo economicus* as if it were self-realizing.

There are a number of studies that seem to show that this presumption of self-realization is not entirely fantasy. On average, economics students placed in interactive situations behave rather more like *homines economici* than do non-economists (see Klamer and Colander 1990; Frank 2004: 155–82). This is due in part to the fact that they have studied this figure and its cognates for years, in part to the fact that their economist colleagues have also studied it and therefore act as if they expected them to act the same way, and in part because they are submitted to experimental scenarios in which what I would call the “Dupuy problem” is central. This problem is contained entirely in the question of how automata can coordinate their actions so as to generate social order. The answer, as Dupuy (1992a, 2002a) has shown, is that each automaton has to receive adequate “information” so as to fit into a systemic constraint the automaton doesn’t know but that will ensure order. And the automaton receives this information by perceiving certain “signals” from its environment and by triggering various adaptive routines.

As I will emphasize many more times later, standard economics is not merely descriptive. In claiming to describe *some* economic reality in which you may be involved, it simultaneously teaches you a *way of being*—with

respect to yourself and to others—which, if you were to adopt it, would indeed generate the greatest possible total utility, or at least a Pareto optimum, or an evolutionarily stable trajectory, under certain social-interaction configurations. In social science a theory is only empirically descriptive if those it describes agree that it's *them* it describes. However, once the particular interaction configurations presupposed in certain models spread and generalize so as to become a salient norm in society (think of market competition or fashion-oriented imitation), they tend to perpetuate the way of being of *homo economicus* since it is the best, or least bad, response to such configurations. For instance, in a highly competitive world, it may be better in the short run to force oneself, or to re-educate oneself, to be an emotionless automaton than to remain a sensitive, critically minded, and hence suffering, subject. Drug use in high-competition sectors testifies to this. In a sense, and only half-jokingly, *homo economicus is a sensitive, critically minded subject who has gone on heavy drugs to survive in an environment where he needs to be a homo economicus. It's not a definite impossibility. Neither is it your basic ideal of an economy made up of cognitively empowered people.*

So when you think about it, the idea that *homo economicus* might be a self-realizing figure is more subtle than it appeared at first. The way people are, on the one hand, and the social-interaction scenarios in which they have to survive, on the other, in fact condition one another. As a result, the figure of *homo economicus* and the social scenarios to which it is adapted form an inseparable whole. You can't criticize one without also criticizing the other, lest you be treated as a naïve dreamer who would like to see individuals develop their "subjectivity" whereas the scary brutality or the dreary uniformity of economic life would rather suggest they remain flexible and unconscious automata. In support of this idea, let me quote Jean-Pierre Dupuy:

You suffer a lot on the market [. . .]: people cannot find work or lose their jobs, firms go bankrupt, suppliers are arbitrated out of business by long-time clients, speculators play big and lose it all, new products fail, investigators end up finding nothing despite arduous efforts, and so on. For the heroic morality of the market to be possible, it suffices paradoxically to view the sanctions as hitting you like twists of fate, unjustified, unforeseeable, incomprehensible. Thus, wisdom will consist in a kind of *Gelassenheit*, a letting-go into the "blind forces of the social process." [. . .] If nowadays we are being invaded by the economic paradigm, as some of us believe, I suspect this is due to the fact that *standard economics has encountered a way—in its utopian fantasy—of solving the problem of evil. It suffices to transform human beings, and the collectives they constitute, into automata.*

(Dupuy 2002b: 73–5)

Note carefully that Dupuy characterizes this theoretical program of mainstream economics as a "utopian fantasy." The joint creation of the individuals'

ways of being and of the social-interaction scenarios which, together, would make *homo economicus* self-realizing, appears to him as a “fantasy.” How are we to interpret this, if not that with respect to the figure of *homo economicus*, the four-step procedure A–B–C–D I suggested earlier has no chance whatsoever of eliciting the subjective adhesion of “normal” persons? How could they remain human subjects if they had to accept to become automata within a mode of socioeconomic organization that requires automata? Who would ever accept such a suicidal move?

Indeed, the social-interaction scenarios to which the figure the automaton-individual is well adapted (no pun intended) are scenarios characterized by what complex-systems theorists call the “trivial coupling” of individuals through imitation, anonymous arbitrage, and so on. The passage from Dupuy shows us that it is these trivial couplings that induce the suffering of persons in the market. How could this suffering ever make our subjective adhesion to the “automaton-individual” figure more palatable? Could a non-trivial human subject give in to trivial couplings to the point that he would for evermore stop reflecting, thinking, dreaming about a better, less trivial life? No. We still tend to describe the idea of such a generalized “automatization” of life as a fantasy. A scary fantasy. This—I believe—means two things.

First of all, we are heirs to the Romantic legacy. This has made us tenaciously—and, I think, legitimately—attached to the idea that subjectivity is a *value* that shouldn’t be too subordinated to the “factual data” expressed in the arena of social interaction. Therefore, *at the level of values*, we tend to refuse an automatic shift from subjectivity into automaticity. When we do act as automata, this is never an attitude we can lucidly endorse except in a very few specific cases where “being on automatic pilot” is a survival strategy—but even then we *do remain* able to say *why* we went “on automatic pilot.” Therefore, second, it’s impossible to imagine that subjects could operate on themselves what I have already called in Chapter 2 a *voluntary lobotomy* or what I would term, more generally, a “*subjecticide*.” How could a subject who cares about his projects and his possibilities of self-actualization give his lucid and free consent to becoming an adaptive automaton? This question is especially crucial since, if all the other subjects became automata too, their interactions would henceforth generate systemic constraints (or “situational parameters”) such that they most probably would remain such automata forever onward. So a conversion into an automaton-individual could never be part of the strategy of a subject who might want to snatch back his subjectivity at some later point, for instance once the material conditions have been improved by some “mechanized interlude.”

The main figure of mainstream economics—the kind of agent claimed by some to be “recognizably human” and needed for complexity theory to be “scientific”—is never fully able to get from being the theoretical figure of an automaton-individual to being *an automatic-adaptive way of life that could be subjectively internalized by each of us*.

Interestingly, this fundamental shortcoming of today's cutting-edge economics was almost pre-inscribed in the mainstream's own, peculiar historical trajectory. Having eschewed the Walrasian fiction of independent agents and its post-Walrasian variants, leading neoclassical economists sought to re-imbue their discipline with interactivity and heterogeneity. However, the way in which they operated this shift led them to uphold, and even deepen, the discipline's specifically non-critical, non-reflexive bias. As I want to show in the two following chapters, there is a reason for this prolonged bias. The conversion of mainstream economics to interactive heterogeneity was carried out under the auspices of the Hayekian heritage, rather than by reaching back to the Marxian tradition. Contemporary evolutionary game theorists and complexity economists are, methodologically, heirs to Hayek's brand of bottom-up theorizing. Therefore, in order to understand the roots of mainstream economics' limitations, and also in order to see whether these limitations can be superseded at all, it will be extremely useful to delve into Hayek's vision of social theory. This is what the next chapter does.

4 The use of uncritical knowledge in society

The Hayekian heritage of complexity economics

For the standard economist, one of the most central and also most unnerving features of Hayek's social philosophy is his insistence on the "importance of our ignorance" (Hayek 1964: 39). Taking his cue from Popper's doctrine of science as being the "knowledge of our ignorance," he writes in his *Studies* that

What we must get rid of is the naïve superstition that the world must be so organized that it is possible by direct observation to discover simple regularities between all phenomena and that this is a necessary presupposition for the application of the scientific model. What we have by now discovered about the organization of many complex structures should be sufficient to teach us that there is no reason to expect this, and that if we want to get ahead in these fields our aims will have to be somewhat different from what they are in the fields of simple phenomena.

(Hayek 1964: 40)

Such a statement is unnerving to the neoclassical economist because it flies in the face of one of the basic tenets of the microfoundations approach. This is the idea that a *nomologico-deductive theoretical model* can allow the economist to deduce aggregate phenomena from assumptions about the laws of behavior of the constituent parts, i.e., of the individual agents (see, for example, Weintraub 1979). The work of critical microeconomists such as Hugo Sonnenschein, Werner Hildenbrand, Alan Kirman, Brian Arthur, and Paul Ormerod has shown that things aren't so simple. "Naïve" aggregation is possible only under the degenerate assumption of the representative agent or, if agent heterogeneity is assumed, under stringent conditions pertaining to the distributions of relevant individual characteristics (see, for example, Kirman 1992, 1997). This makes micro-founded macroeconomics at best a perilous enterprise, and may even, in specific cases where the representative-agent fiction is used, make it an exercise in sophisticated irrelevance. In fact,

Hayek was playing into the hands of the proponents of theory-free macroeconomics and vector-autoregressive econometrics when he stated that

Though we may never know as much about certain complex phenomena as we can know about simple phenomena, we may partly pierce the boundary by deliberately cultivating a technique which aims at more limited objectives—the explanation not of individual events but merely of the appearance of certain patterns or orders. [. . .] Once we explicitly recognize that the understanding of the general mechanism which produces patterns of a certain kind is not merely a tool for specific predictions but important in its own right, and that it may provide important guides to action (or sometimes indications of the desirability of no action), we may indeed find that this limited knowledge is most valuable.

(Hayek 1964: 40)

The term “complexity” used here by Hayek has to be taken in the technical sense of the theory of complex adaptive systems. Hayek makes a deep point about how compounds get composed from constituents, a point that has long been recognized by physicists and biologists (see, for example, Ball 2004; Mainzer 2004; Beinhocker 2006). In economics, it can hardly be avoided merely by standard micro- and macroeconomists’ continued and sometimes calculated ignorance. It has to be faced squarely to the extent that it reflects an ontological feature of the social system, namely complexity as the irreducibility of the compound level to an explanation in terms purely of the constituent levels. And, as we saw in Chapter 3, it *has* been faced squarely by a now significant group of mainstream economists tied more or less loosely to the Santa Fe Institute and the Brookings Institution, and grouped around three main concepts: statistical mechanics, multi-agent interactive processes, and “artificial”—i.e., computer-simulated—societies (see, for example, Resnick 1994; Epstein and Axtell 1996; Arthur *et al.* 1997a; Gilbert and Troitzsch 1999; Colander 2000; Durlauf and Young 2001).

The discipline, or set of disciplines, that emerges from this focus on emergent properties of complex adaptive systems has recently been described by Durlauf and Young under the heading of “social economics,” implying the death of the old duality—present, for instance, in Popper’s (1962) paper on social science, but not in Adorno’s (1962) reply—between economics as the science of free choice at given social constraints and sociology as the science of the formation of these social constraints. Today’s complexity mainstream makes intensive use of statistical physics. This discipline is based on the notion that the constituents’ trajectories or micro-choices cannot and need not be modeled in detail, but can in some cases be described by statistical distributions. As a result, certain compound phenomena—paths through a park, traffic flows, lines in supermarkets—may possess laws of motion or behavior which are robust to changes in the specifics of the individual constituents’ motion or behavior.

At first sight, this seems to betray a significantly more positivistic bend than Hayek, being an Enlightenment humanist with both Scottish *and continental* roots, would have tolerated. Isn't the focus on aggregate laws and regularities one of the hallmarks of Auguste Comte's positivistic heresy which Hayek (1941, 1951) so ardently tried to fend off? Isn't individual liberty and the creation of a social science in which the individuals, and not the aggregate entities, are the key elements one of Hayek's lifetime goals (Hayek 1943, 1945a)? However, being methods of empirical classification of phenomena and not of analytical explanation, the procedures of statistical physics neither affirm *nor deny* a substantial amount of individual liberty and autonomy in the cases where the constituents can be considered to possess purposes, free will, etc. In fact, this is the mystery and attraction of statistical physics. *Despite* possibly significant synchronic heterogeneity and chronological variability of the constituents' behavior, *nevertheless* certain aggregate laws (such as Pareto's law or the power law) seem to persist. Indeed, ever since Hobbes the majority of social scientists have thought

that people are different from atoms, bacteria or animals: their thoughts, desires and sensations are more complex, and provoke them into conflict. [. . .] Many social scientists [. . .] have long assumed that people are just too complicated to yield to any mathematical model of behavior. We are each moved by a thousand impulses in a blend unique to every one of us. So what is the point of making idealizations of human activity? [. . .] [However,] beyond this miasma of individuality, there might lie some quantifiable *statistical* characteristics of what humans do in moving groups. [. . .] There are some general rules, some constraints, some trends and averages.

(Ball 2004: 159–60)

This is precisely what Hayek's above-quoted principle of ignorance says. So the new complexity economics, which makes heavy use of this kind of idea, is intrinsically Hayekian in its method. This has not escaped most of its most prominent proponents. For instance, Peyton Young opens his *magnum opus* entitled *Individual Strategy and Social Structure* (Young 1998: vii) with a quotation from Hayek's article on "The Use of Knowledge in Society" (Hayek 1945b) to the effect that genuine social science "must show how a solution [to the problem of decentralized social order] is produced by the interactions of people, each of whom possesses only partial knowledge."

Theorist's ignorance, agents' ignorance

Let's summarize Hayek's main theses about knowledge in two passages from two of his most celebrated papers. The first is from his article on the "use of knowledge in society":

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders. We must solve it by some form of decentralization. But this answers only part of our problem, because the “man on the spot” cannot decide solely on the basis of his limited but intimate knowledge of the facts of his immediate surroundings. There still remains the problem of communicating to him such further information as he needs to fit his decisions into the whole pattern of changes of the larger economic system. How much knowledge does he need to do this successfully? [. . .] It is in this connection that [. . .] the “economic calculus” (or the Pure Logic of Choice) helps us, at least by analogy, to see how this problem can be solved, and in fact is being solved, by the price system. [. . .] The whole acts as one market, not because any of its members survey the whole field, but because their limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all.

(Hayek 1945b: 83–6 *passim*)

The second passage is from his article on unintended consequences, two decades later:

The belief in the superiority of deliberate design and planning over the spontaneous forces of society enters European thought explicitly only through the rationalist constructivism of Descartes. But it has its sources in a much older erroneous dichotomy which derives from the ancient Greeks and still forms the greatest obstacle to a proper understanding of the distinct task of both social theory and social policy. This is the misleading division of all phenomena into those which are “natural” and those which are “artificial.” [. . .] it was finally in reaction to this Cartesian rationalism that the British moral philosophers of the eighteenth century, starting from the theory of the common law as much as from that of the law of nature, built up a social theory which made the undesigned results of individual action its central object, and in particular provided a comprehensive theory of the spontaneous order of the market. [. . .] The uncomprehending ridicule poured [. . .] on, Adam Smith’s expression of the “invisible hand” by which “man is led to promote an end which was no part of his intention,” however, once more submerged this profound insight into the object of all social theory, and it was not until a century later that Carl Menger at last resuscitated it in a form which now, yet another eighty years later,

seems to have become widely accepted, at least within the field of social theory proper.

(Hayek 1967: 96–100 *passim*)

These two passages make up the core of what we can call *Hayekian economics*, or complexity-driven economic theory. The passages also apply to the new mainstream complexity economics. They combine two distinct and precisely circumscribed types of ignorance.

- 1 Each individual agent leads her existence in the sole pursuit of her personal interests, unaware of the fact that the overall constraints she faces are the compounded effect of her own action together with all other actions. Hayek puts it this way:

It is always a question of the relative importance of the particular things with which he is concerned, and the causes which alter their relative importance are of no interest to him beyond the effect on those concrete things of his own environment.

(Hayek 1945b: 84)

- 2 The theorist can observe—and must, as a genuine social scientist, confine herself to observing—the compounded effect of all individual actions. She is therefore bound to remain ignorant of the motives which “really” impelled each individual to act as he did. According to Hayek,

If conscious action can be “explained,” this is a task for psychology but not for economics or linguistics, jurisprudence or any other social science. What we do is merely to classify types of individual behavior which we can understand, to develop their classification—in short, to provide an orderly arrangement of the material which we have to use in our further task.

(Hayek 1943: 67)

In some cases, such as in statistical physics and in the modeling of gas pressure through random walks of a large numbers of particles, significant heterogeneity can be accepted in principle but it is irrelevant in practice. The statistical properties of the compound phenomenon (power law, Gaussian distribution, Pareto’s law, and so on) can be used directly by the theorist in full ignorance of the details of the interaction. In other cases—such as the modeling of financial markets, Keynes’s (1936) model with interactions between “bears” and “bulls,” or Kirman’s (1991) model involving interactions between “fundamentalists” and “chartists”—more limited variability of types or categories of behavior is accepted. This is because the models have to be kept analytically tractable and refinements which are unnecessary

given the compound phenomenon under study (here, financial bubbles) can be avoided.

This two-tier ignorance is perhaps the main key to Hayek's and mainstream complexity-economists' vision of economics and its legitimate aims. As is well known, Hayek's concept of "true individualism" and its legal and political implications crucially underlie this advocacy of twin ignorance. As a humanist he is not, of course, calling for social theorists to build interactive models of mindless, ignorant atoms. What Hayek really has in mind is a normative conception of individual empowerment: the maximal realization of *each* individual's liberty when *several* individuals interact can only be ensured if no allocation of resources (ideas, goods, services, and so on) is imposed *ex machina* so as to short-circuit that interaction. In other words, a set of rules and regulations has to co-evolve so that, out of the virtually infinite *ex ante* heterogeneity of individual aims, some indeterminate *ex post* order can result *as a purely emergent property of the system of interactions*.

This, to Hayek's mind, has at least two very direct implications for the status of social-science knowledge:

- (a) Explanatory theoretical models are optional. When you *do* search for a causal explanation of exactly how a certain orderly state emerged at a certain time and place, you usually have in the back of your mind some sort of policy intervention. To paraphrase Axelrod and Cohen's (2000) approach already discussed in Chapter 3, such interventions are attempts at "harnessing complexity." They require an understanding of how to *influence* an economic system's outcomes so as to further one's objectives without exercising any *control* over the agents' motivations and goals. The focus of pre-complexity economics on "top-down" incentive schemes and mechanism design flows directly from this view. Hayekian economics is wary of such approaches.
- (b) Normative theory is morally forbidden because it all too easily strays away from what Hayek (1960) called "the constitution of liberty." By this, he means the co-evolutionary emergence of a broad system of legal rules, cultural values and economic incentives constituting a "Rule of Law" (Hayek 1944: 75–90) in which "planning and competition can be combined." Such a combination can be attained "only by planning *for* competition, not planning *against* competition" (Hayek 1944: 43, italics added). The focus of much of complexity economics on the "bottom-up" evolution of norms and the interactive emergence of patterns flows directly from this view.

In fact, these two implications are not independent. The economist's moral obligation to follow (b) is a direct consequence of (a)'s being linked to

an indisputable intellectual fact which nobody can hope to alter and which by itself is a sufficient basis for the conclusions which the

individualist philosophers drew. This is the constitutional limitation of man's knowledge and interests, the fact that he *cannot* know more than a tiny part of the whole of society and that therefore all that can enter into his motives are the immediate effects which his actions will have in the sphere he knows. [. . .] The real question, therefore, is not whether man is, or ought to be guided by selfish motives but whether we can allow him to be guided in his actions by those immediate consequences which he can know and care for or whether he ought to be made to do what seems appropriate to somebody else who is supposed to possess a fuller comprehension of the significance of these actions to society as a whole.

(Hayek 1945a: 14)

In fact, the individual agent is inherently unable to acquire the knowledge that would be needed for him to act on broad ethical, moral, or critical convictions, since

Whether his interests center round his own physical needs, or whether he takes a warm interest in the welfare of every human being he knows, the ends about which he can be concerned will always be only an infinitesimal fraction of the needs of all men.

(Hayek 1944: 62)

So "interests" pertaining to society-wide issues are not excluded by Hayek, but he deems them somehow *practically irrelevant* because the individual agents' ignorance is a constitutive limitation due to their neurological wiring. The theorist's ignorance, however, has to be voluntary. It is rooted in an ethical commitment not to violently impose on the complex plurality of goals a monolithic reduction of them, at least when it comes to normative judgments about society. This drastic voluntary limitation of what *normative* theory allows itself to offer is based on a *positive* fact:

. . . nobody can know *who* knows best and [. . .] the only way by which we can find out is through a social process in which everybody is allowed to try and see what he can do. [. . .] Or, to put this fundamental contention differently, human Reason, with a capital R, does not exist in the singular, as given or available to any particular person, as the rationalist approach seems to assume, but must be conceived as an interpersonal process in which anyone's contribution is tested and corrected by others.

(Hayek 1945a: 15)

So this two-tier ignorance does not hinder what, in Popperian fashion, Lindblom and Cohen (1979: 4) have called "social problem solving." This is perhaps the most striking methodological conclusion of Hayek's whole setup. As Lindblom and Cohen put it,

Information and analysis provide only one route because [. . .] a great deal of the world's problem solving is and ought to be accomplished through various forms of social interaction that substitute action for thought, understanding, or analysis. [. . .] People differ from each other in the kind and quality of ordinary knowledge they possess. Yet although practitioners of professional social inquiry possess a great amount of relatively high-quality ordinary knowledge, so do many journalists, civil servants, businessmen, interest-group leaders, public opinion leaders, and elected officials. [. . .] [An] alternative to professional social inquiry is interactive problem solving through the many devices by which action substitutes for thought—never wholly but significantly. [. . .] A given problem can be attacked by understanding, thought, or analysis (we treat these terms as strictly synonymous) of that very problem, or by various forms of interaction among people, in which what they do, rather than what they or anyone else thinks (or understands or analyzes) about that problem moves toward the solution or preferred situation. Strictly speaking, since people never stop thinking, the alternatives are a frontal analytical attack on some identified problem, or the interaction in which thought or analysis is adapted to the interaction and is therefore on some issues displaced by interaction. (Lindblom and Cohen 1979: 10–20 *passim*)

In interactive social problem-solving, the solution emerges from the practical interaction of individuals who, when considered from the overall viewpoint, are largely ignorant. An economist who relinquishes her ambition to solve a social problem through her “top-down” understanding thereby chooses to respect this *constitutive limitation of individual-level knowledge*. And since, as Hayek and Popper would both contend, normative issues about the rules and structure of society are themselves social problems, this “displacement of thought by interaction” may also apply to social problems traditionally addressed via normative economics or political philosophy.

The competitive process as a real-time “theory”

The mechanism of competition is, of course, Hayek's chief mode of displacement of thought by interaction:

When we deal [. . .] with a situation in which a number of persons are attempting to work out their separate plans, we can no longer assume that the data are the same for all the planning minds. The problem becomes one of how the “data” of the different individuals on which they base their plans are adjusted to the objective facts of their environment (which includes the actions of the other people). [. . .] Competition is essentially a process of the formation of opinion: by

spreading information, it creates that unity and coherence of the economic system which we presuppose when we think of it as one market. It creates the views people have about what is best and cheapest, and it is because of it that people know at least as much about possibilities and opportunities as they in fact do. It is thus a process which involves a continuous change in the data and whose significance must therefore be completely missed by any theory which treats these data as constant. (Hayek 1946: 93 and 106)

So for Hayek, “planning for competition” means that none of the rules and regulations of the legal and customary order should be allowed to impede this interactive process of information processing and dissemination. The final judgment on each individual’s performance and place within that process should be passed in a fully anonymous way. It should be *no one’s judgment in particular*. This can only be so if rational judgment itself (and thus “human Reason, with a capital R”) is a systemically emergent property of the interactive process.

This has far-reaching consequences. Rationality can be neither substantive nor procedural, since what is in agreement with Reason can be neither fixed as an eternal substance nor embodied in pre-existing general procedures. In the Hayekian perspective, human rationality is a purely emergent property in the sense that it can only be stated *ex post* as the property of what Dupuy (1992a) has called a “self-exteriorized,” or “self-transcendent,” social whole. So neither outcomes nor rules are *per se* rational. Only the interactive process that puts itself through the culturally evolved legal and customary framework of the Rule of Law can be viewed, *after the fact*, as an embodiment of “Reason.” Therefore, Hayek’s complex-systems analytics, which implies that “human Reason [. . .] must be conceived as an interpersonal process,” leads him to the recognition that *human reason is neither substantial nor procedural, but processual*. Reason is a process. It’s not the criterion for judging an outcome or a set of procedures. But then, who is to judge an individual or a society? Well, since no individual can claim to be rational by himself—because he always “takes part in a process more complex and extended than he could comprehend” (Hayek 1945a: 14–15)—and since from each individual’s point of view no one else can be allowed to claim rationality in his name, rational judgment can only be uttered by a Great Nobody. This is *the figure of the market* as the “subjectless process” (Dupuy 2002a) which succeeds in recapitulating everyone’s judgment without singling out any particular judgment. And this subjectless process with its paradoxical recapitulation defines reason. Reason is a competitive process in which the instance of judgment is the selection process *itself*.

I believe that if we take this position quite seriously, we end up with a starkly *anti-theoretical* stance.¹ This is because once rationality is defined as a competitive process, no economic theory can without contradiction question

the “validity” of that process. That would be just as impossible as Kantian transcendental reason questioning its own (transcendental) conditions of possibility! From a Hayekian point of view, there is empirical evidence for the fact that the competitive process escapes rational criticism: In a “free” society, which means a competitive society, even anti-competition ideas or theories have to go through the competitive process in order to reach their audiences. They have to be taught in the right places to the right people, sold by the right publishers in the right bookstores, come on the air in the right mass media at the right time, and so on. We might say that, in line with the above notion of interactive social problem-solving, Hayek has a specific way of closing the gap between social theory and social functioning: Since the competitive process is the only coherent definition of rationality, a competitive market system is also the only coherent institutional set-up in a “free” society. But notice carefully that this means that *the competitive social process is the only self-validating, hence concretely supporting, social “theory.”* I have put the word *theory* between quotation marks because, here, theory itself becomes a process rather than being a contemplative discourse built up by an outside observer.

This idea is absolutely crucial in order to understand the depth of Hayek’s position. It is also central if we are to understand the fundamental structure of the new complexity economics and its frequent lack of critical distance *vis-à-vis* competition, imitation, adaptation, and so on. In fact, Hayek succeeds in positing the process of competition as the very *embodiment of reason at work* within the constantly evolving fabric of socio-economic interactions. One class of these interactions is the interactive construction of economic theories. In a Hayekian perspective, various theories of the economy acquire their status as theories only *through* competition and hence cannot coherently theorize *non-competitive* processes. In a complex adaptive process, you can’t both be inside and outside looking in.

In similar fashion, Niklas Luhman (1984, 1997) has claimed on the basis of complex-systems theory that no participant in a system is ever able to observe that system from the outside. According to Luhmann, careful analysis will always reveal that your very cognitive faculties are actually results of, and not only preconditions for, your participation in the system. So your cognitive abilities cannot without ultimate contradiction lead you to formulate alternatives to the system. Extra-systemic alternatives are an illusion for Luhmann, in the same way that alternative interpretations of rationality are an illusion for Hayek when he claims

that to recognize something as mind is to recognize it as something similar to our own mind, and that the possibility of recognizing a mind with a structure fundamentally different from our own, or to claim that we can observe changes in the basic structure of the human mind is not only to claim what is impossible: it is a meaningless statement.

(Hayek 1942–44: 135)

In other words, for Hayek, claiming that reason can be anything else than a competitive market process, or using reason to claim that anything but a competitive market process should be our concrete institutional setup, involves a radical contradiction. It's like jumping over one's own shadow or pulling oneself off the ground by one's own hair. This certainly explains why even complexity economists working at the very front line of the discipline, such as Jason Potts in his book on *The New Evolutionary Microeconomics*, still make the reductive claim that this front-line paradigm studies "the interactions between agents over the dynamic network that is *the object of our science, the market economy*" (Potts 2000: 7, italics added). If Reason itself is a market of sorts, that's no surprise.

Competition and "spontaneous consciousness"

What comes out of this discussion is the idea that *the lack of individual control over, and even the lack of individual anticipation and apprehension of, economic phenomena is one of the hallmarks of a genuinely liberating economy*. Hayek's doctrine of cultural evolution is deeply embedded in this conviction that the unexamined social life is a necessary condition for individual liberty:

The crucial point is that it is infinitely more difficult rationally to comprehend the necessity of submitting to forces whose operation we cannot follow in detail, than to do so out of the humble awe which religion, or even the respect for the doctrines of economics, did inspire. It may indeed be the case that infinitely more intelligence on the part of everybody would be needed than anybody now possesses, if we were even merely to maintain our present complex civilization without anybody having to do things of which he does not comprehend the necessity. The *refusal to yield to forces which we neither understand nor can recognize as the conscious decisions of an intelligent being* is the product of an incomplete and therefore erroneous rationalism. It is incomplete because it fails to comprehend that the co-ordination of the multifarious individual efforts in a complex society must take account of facts no individual can completely survey. And it fails to see that, unless this complex society is to be destroyed, the only alternative to *submission to the impersonal and seemingly irrational forces of the market* is submission to an equally uncontrollable and therefore arbitrary power of other men.

(Hayek 1944: 210, italics added)

This is an anti-Socratic prescription, which is somewhat surprising for an author who subscribes to another strong Socratic maxim, namely the knowledge of our ignorance. Hayek is Socratic when it comes to admitting that we know very little, and anti-Socratic when it comes to asking ourselves how we could overcome this ignorance. He is, after all, a Humean,

just like his successors in mainstream complexity economics. He wants us to accept the idea that any individual agent's economic life has gone unexamined because it is *intrinsically* impervious to examination.

Hayek wants to condemn what he sees as a fundamental human illusion. We tend to treat the emergent properties of a complex system as if they could be controlled and, hence, analytically decomposed and recomposed. This may be true for certain (though by no means all!) features of our individual lives, but it certainly isn't true for economic phenomena. The hallmark of complexity is that concepts about compounds are "paradoxical" when applied to the constituents: you can't predict the shape of higher-level entities from the properties of lower-level entities. Therefore, emergent phenomena are in a strong sense *non-decomposable*. This allows Hayek to deride individually held "views from above" or ideologies, and to put exclusive emphasis on practical skills and adaptive capacities.

In fact, notice that he pins against each other those who accept economic reality "rationally" and those who (less rationally in his view) accept it "out of respect for the doctrines of economics"! Should we take this to mean that truly "rational" agents will keep their hands off economics and get on with their daily business of imitation, adaptation, credit accumulation, and competitive behavior? Is the knowledge offered by "the doctrines of economics" just an optional gimmick in a genuinely liberating—i.e., complex—economy? *Is economic complexity really that impervious to agents' theoretical reflection and critical scrutiny?* If so, then we have to take our cue from Hayek and call any economic theory "ideology." Individual agents (including economists themselves) fall prey to illusion if they believe they can possess a global overview and a general explanatory scheme for what, in actual fact, cannot be overviewed or comprehended. Ideology, from a Hayekian perspective, would be the illusion of comprehending complexity—if, by "comprehension," we mean the capacity to decompose analytically and then re-compose the system's interactions in such a way as to be able to affect the compound outcomes by influencing the constituents' *motivations and goals*.

In a Hayekian perspective, there is no such thing as "the economy" independently of the *already and always ongoing* real-time interactions of the individual agents. These interactions include, of course, the evolutionary generation and drift of traditions, rules, and institutions. More precisely, if you look at any given individual, no outside observer is ever able to comprehend and transparently model the way in which that individual perceives and apprehends his environment. This is simply because, for that individual, "the world" is a *deeply subjective and inalienable* result, rather than a pre-given medium, of his engagement with his environment. Much the same is being said nowadays by cognitive scientists who discover

that knowledge cannot be explained as a mirror of nature, but rather that the knower and the known are co-implicated. This is, epistemologically, a theme dear to post-modern philosophy: the absence of a

reference point, or a *lack of foundations*. This is in direct contradiction to the classical scientific tradition of objectivism.

(Varela 1990: 13)

As Dupuy (1992a,b,c) has emphasized, Hayek was during his whole life a roadside companion of cyberneticists and cognitive scientists. He drew crucial insights from their developments on information-processing and evolutionary selection. He never worked as a cognitive scientist himself, but he was keenly interested in the implications that could be drawn from cognitive and complexity science as to the status of knowledge in society.

Hayek's subjectivism would have made him wary of most attempts at neuro-reductionism. A significant part of Hayek scholarship has focused on his relationship to Darwinism and classical evolutionism (see Hodgson 1993). Still, I conjecture he would most probably have had a feeling of kinship with Varela's notion of "knowledge as enaction." This is the idea that individual cognition, far from being reducible to information-processing, instruction-following, or selective optimization, has to do with "the ways in which system and environment define each other" (Varela 1990: 21). And Varela emphasizes that once we have deconstructed first- and second-generation cognitivism, "what we are left with [. . .] is a situation in which you cannot rely on having *foundations*, an external reference point to serve as foundation. Whatever is regular, is a condition inseparable from your co-implicative history, it is not sitting out-there" (Varela 1990: 23). We even find quasi-Hayekian formulations, such as the following:

Ordinary life is necessarily one of *situated* agents, continually coming up with what to do faced with ongoing parallel activities in their various perceptuo-motor systems. This continual redefinition of what to do is not at all like a plan selected from a repertoire of potential alternatives; it is enormously dependent on contingency and improvisation, and is more flexible than any plan can be. A situated cognitive entity has—by definition—a perspective. This means that it isn't related to its environment "objectively," independently of the system's location, heading, attitudes, and history. [. . .] Whatever is encountered in the environment must be valued or not and interacted with or not. This basic assessment of surplus signification cannot be divorced from the way in which the coupling event encounters a functioning perceptuo-motor unit; indeed, such encounters give rise to *intentions* [. . .], and intentions are unique to living cognition. To put it another way, the nature of the environment for a cognitive self acquires a curious status: it is that which *lends itself* to a surplus of signification. [. . .] Indeed, the cognitive system cannot live without this constant coupling with and the constantly emerging regularities provided by its environment; without the possibility of coupled activity the system would become a mere solipsistic ghost. [. . .] Once cognitive intelligence is approached

from this self-situated perspective, it quickly becomes obvious that there is no place where perception could deliver a representation of the world in a traditional sense. The world shows up through the enactment of the perceptuo-motor regularities.

(Varela 1999: 55–9 *passim*)

Indeed it's plausible to say that, in line with Schumpeter's (1942) view of competition as creative destruction and with Kirzner's (1973) view of competition as a process of discovery, the "Vienna view" on competition is that without the real-time unfolding of actual social interactions, there would be no "economic world" (and perhaps even no "world" at all) for the individuals to know and experience. That's why entrepreneurship acquires such a quasi-sacred status in Austrian economics, as the very paradigm of the emergence of enacted knowledge. In the competitive process, both imitation (tradition-heeding) and innovation (fruitful breaks with tradition) become part of the way in which the economic environment, as an emergent property, is shaped by the actions of the interacting individuals while at the same time shaping their very criteria of action, as well as the content of the "data flow" which they utilize, without realizing that these "data" are nothing but the emergent properties of their interactions. While based on enacted knowledge, competitive interaction also shapes the further enactment of new knowledge. Following Humberto Maturana, one can say

that for any particular circumstance of distinction of a living system, conservation of living (conservation of autopoiesis and of adaptation) constitutes adequate action in those circumstances, and, hence, knowledge: *living systems are cognitive systems, and to live is to know*. [At the same time,] any interaction with a living system can be viewed as a question posed to it, as a challenge to its life that constitutes a domain of existence where [the observer] expects adequate action of it. At the same time, then, the actual acceptance by the observer of an answer to a question posed to a living system entails [this observer's] recognition of adequate action by the living system in the domain specified by the question, and consists in the distinction of [the living system] in that domain under conditions of conservation of autopoiesis and adaptation.

(Maturana 1990: 89–90)

Replace the "observer" by the impersonal instance of reason as a competitive process, and the "question" or "challenge" by competitive pressure, and you have a pretty accurate statement of how enacted knowledge comes into play in competition.

Now according to Varela, the flow of "encounters" which make up the competitive process and the associated flow of "intentions" sustains a "self-less self." He characterizes this as "a coherent whole that is nowhere to be

found and *yet* can provide an occasion for the coordinated activity of neural ensembles” (Varela 1999: 60). In fact, “Our sense of a personal ‘I’ can be construed as an ongoing interpretative *narrative* of some aspects of the parallel activities of our daily life, whence the constant shifts in forms of attention typical of our micro-identities. Whence also the relative fragility of its narrative construction” (Varela 1999: 61). One of these fragile narratives is, of course, our impression of “a homuncular soul-like entity.” Another is “a vaguer sense of ‘self as process’” (Varela 1999: 60).

Hayek was probably never that deep-reaching in his grasp of the shaded subtleties of cognitive science. Still, this idea of *the self as a process* would obviously have appealed to him—all its fragility notwithstanding—as a perfect counterpart to *Reason as a selfless process*. Indeed, the flow-of-consciousness and intentionality literatures inherited from phenomenology, which Varela in some sense seeks to naturalize, have always insisted that consciousness is essentially a process springing from spontaneous, ongoing interaction with an “environment” which is at the same time “constituted by” that consciousness. It’s plausible to believe that Hayek would have found all this congenial to his overall approach to economic phenomena. At least, *I believe I* would find the approach of enacted knowledge congenial if I had Hayek’s convictions about “the use of knowledge in society.”

To prepare the forthcoming debate with Horkheimer’s critical-theory approach, let me call my interpretation of Hayek’s cognitivism *the approach of spontaneous consciousness*. By that, I mean that in the Hayekian perspective, forms of consciousness and the content of the flow of consciousness are emergent properties of acts of cognition viewed as living, “intentional,” *spontaneous* interaction with an environment that both defines, and is defined by, these acts of cognition. Unsurprisingly, given what I have explained above, this approach of spontaneous consciousness puts deeply into question the ability of the acting subject to understand and shape the social whole in which his local and situated acts of cognition are embedded. But that, of course, is precisely what Hayek believes. And, as a consequence, it also has to be what the more contemporary proponents of the new complexity economics believe.

From co-evolution to co-reflection

Obviously, mainstream complexity economics is an heir to Hayek’s positions on knowledge and rationality. However, mainstream economists want to be “scientific” in a sense that Hayek would have strongly objected to. It is my perception that this aspiration has led post-neoclassical mainstream theorists to make their models into caricatures of what Hayek viewed as a free society. Take, for instance, Young’s (1998) already alluded-to book, and also Walliser’s, Orléan’s and Lesourne’s recent textbook on evolutionary economics. Here is what they claim:

Contrary to the theory of intentionalistic decision, which operates with typical and well-established choice models, evolutionary decision theory proposes a whole array of models that are still quite diverse and possess no unifying principles. It has highlighted the role played by three types of partial rules: categorization rules (which allow an agent to apprehend his environment as well as himself), predictive rules (which make it possible to predict the consequences of possible actions), decision rules (in order to select the action to be implemented). [. . .] Rules of each family must be [. . .] grouped into a small number of global choice rules respecting the consistency conditions between partial rules.

(Lesourne *et al.* 2002: 34)

Hayek's theory of a liberal social order is located within an intellectual world informed by Enlightenment values. These values come in part from Hume, Smith, and the Scottish Enlightenment; but they also originate, in part, from Kant, Diderot, Hegel, and the continental Enlightenment. The contemporary models sacrifice so much to cognitivism, to behaviorism, and to a positivistic view of science that they get skewed towards Humeanism and end up, once again, portraying agents as routine-driven automata. As a subjectivist bent on creating a society where individuals' spontaneous consciousness can unfold "freely," Hayek would certainly not have endorsed such dried-up, technocratic cognitivist modeling. However, one has to admit that his own (more Humean than Kantian) views about the need for a localized, uncritical use of knowledge by citizens—knowledge indeed reducible to "information"—have strongly influenced mainstream economics' choice of assumptions concerning individual rationality. Young's Hayekian claim, which I quoted in Chapter 3, that agents in such "low-rationality environments" are "recognizably human" because they "look around them" and "gather information" using very simple, routine learning processes, may be a descriptive claim in certain very specific circumstances (such as a traffic jam or a line at the supermarket cashier's) but can be taken as generally descriptive only if one assumes—counterfactually—that critically rational humans could somehow *choose* to be such agents. I made this very clear in the last part of Chapter 3.

Now, evolutionists and behaviorists will usually reply that the question is not one of *choice* but one of *gradual co-evolution* of norms of behavior and interaction within a slowly evolving culture. Hayek's notion of cultural evolution, although on certain counts more sophisticated than that, does appear to vindicate such a view. In a Hayekian framework, ways of organizing society and ways of being human co-evolve and cannot be said to flow from conscious individual choices. As Paul Seabright puts it, replicating many of the arguments we have encountered in this chapter and the previous one,

We may like to think of ourselves as individuals quite unlike others, but in many respects our behavior is highly predictable. Partly this is

because of our biology: we have physical needs that are by and large common to other members of our species. Social conventions also play a part [. . .]. But finally it is the sheer number of us that makes our behavior predictable, for large numbers of people tend under many conditions to behave in much more regular ways than do any of the particular individuals of which such crowds are composed. [. . .] We frame rules for behavior toward strangers that mimic the way we treat our family and our friends, and we reinforce those rules by explicit systems of incentives, as well as by education and training—an apprenticeship for social life that is designed to make opportunistic behavior more uncomfortable for us. By training us to follow the rules of social cooperation, this apprenticeship makes our behavior reliable for others to count on. At the same time, and disturbingly, it reinforces our tunnel vision, giving us a power to influence our world at a distance that exceeds our capacity to care much of the time about the damage we do [. . .]. *Politicians' inability to control events is not an accidental and regrettable feature of modern society. It is a consequence of the very complexity and the consequent tunnel vision, that have given us both rewards and the dangers of prosperity in its modern form, in the same way that storms are an inevitable danger once a boat leaves port and heads for the open sea.*

(Seabright 2004: 21–8 *passim*, italics added)

Together with Young's insistence that his work in evolutionary game theory is in line with Hayek's theory of the "use of knowledge in society," Seabright's passage is a sign that current mainstream economics is attempting to combine cognitivism and behaviorism with a Hayekian view of economic dynamics. The synthesis comes in the guise of cognitive economics and complexity economics. The subjectless process of co-evolution of rules, norms, and incentives is one key feature of such a view of the economy, together with the subjectless nature of the individual agent.

We saw in Chapter 3 that this synthesis is less than convincing when it comes to another central element of Hayek's heritage: the continental Enlightenment and its idea that humans are fundamentally drawn towards emancipation and freedom through the reflexive use of reason. Hayek believed that emancipation would ensue in a free-market democracy. Seabright's rhetoric shows that mainstream economics, in its current state, does not possess the conceptual tools for reflecting on how agents' aspirations to social emancipation could transform "spontaneous consciousness" into what Horkheimer will call "conscious spontaneity." In other words, mainstream economics is unable to help us understand how agents' critical rationality might transform an individual drive to survive by imitation and adaptation into an individual desire to shape the economy's future otherwise than by simply playing along with the evolved rules and incentives.

Such a conscious shaping of the economy by its agents is usually interpreted by complexity economists as a self-defeating urge to exercise control over an uncontrollable process. One of the major insights to be gained from Hayek is, indeed, that in any free society evolution will in some sense *have to* be subjectless. Subjectless emergence is arguably one central hallmark of any free society. Notice, however, that Seabright almost unwittingly uses the word “designed” when speaking of the co-evolution of rules, norms, and incentives. Why? Because—much like Hayek—he puts himself in the self-contradictory position of the theorist who, “from the top down” as it were, claims that no one in the economy can and should possess a bird’s-eye view of the whole economy. This claim is self-contradictory because it is itself a bird’s-eye claim to the effect that no one can have a bird’s-eye view.

The upshot of such an untenable methodological stance is that the economist ends up in the isolated position of being *the only subject who, by assumption, possesses the reflexive capacities to defend subjectlessness!* This seems to me to be one of the most basic inconsistencies of complexity economics. It is, in fact, the most basic inconsistency of the mainstream in general and of many non-mainstream theories as well: that the subjects who hold such theories (the economists) act within the economy as voice-holders for the absence of subjects, even though any empirical economy is demonstrably populated with subjects (the agents).

True enough—and here Hayek proves much more consistent than his later behavioral-cognitivist disciples—one of the ways in which subjectlessness can be defended is that it reflects an ideal of freedom, hence of *impartiality*. It is well known that to Hayek, one of the main virtues of the “catallaxy,” or market game, was its unflinching impartiality: there are those who win and there are those who lose, and competition (like Reason itself) stands superbly apart from the sufferings of this or that individual. We are all, as it were, engulfed in a subjectless Whole that seems “designed to” make competitive selection fair. To Hayek, this has little to do with any kind of survival of the race or some such pseudo-Darwinian gimmick. It has to do with the basic features of a free society. Hayek’s normative position, as we saw, is that a complex adaptive system “requires” individuals to be “*local*” *actors-thinkers* within a social whole that escapes their cognitive grasp:

... what the individual may or may not do, or what he can expect his fellows to do or not to do, *must depend* not on some remote and indirect consequences which his actions may have but on the immediate and readily recognizable circumstances which he can be supposed to know. [...] the part of our social order which can *or ought to be* made a conscious product of human reason is only a small part of all the forces of society. [...] Man in a complex society *can have* no choice but between adjusting himself to what to him *must seem* the blind forces of the social process and obeying the orders of a superior.

(Hayek 1945a: 18, 22 and 24, italics added)

We need to investigate the exact meaning of this seeming “requirement.” Obviously, since no agent can possess a bird’s-eye view of the economy, no agent can *consciously* internalize such a requirement of ignorance in the name of economic freedom. How could agents internalize a requirement whose very formulation can only come from the complexity theorist himself? The complexity theorist therefore assumes “her” agents to be both

- (a) devoid of an overall view of the economic world within which they evolve, and
- (b) devoid of a desire or impulse to possess such an overall view, hence to carry out the actions and interactions that would be needed to form it.

The key is that Hayek identifies individual freedom with the ability to adapt to the “hard discipline of the market” (Hayek 1945a: 24). That is, he identifies a free society with a radically decentralized market society framed within a co-evolved legal framework “designed to” ensure negative or formal liberties (non-encroachment, contract enforcement, and so on). No one else but Hayek, of course, initially is able to see the reasons for this “design.”

But let’s reflect on this for a moment. *Can competitive co-evolution really reflect freedom if it is not accompanied by what we might call “co-reflection”?* As a self-declared liberal, Hayek is partly an heir to the Scottish Enlightenment. But he cannot completely avoid the issue of reflexivity, which is more deeply rooted in the *continental* Enlightenment. Can “spontaneous consciousness” be all there is? Shouldn’t it be as “conscious” as possible? In a truly free society, he claims, failure and suffering can hit anyone and this must be accepted in the name of freedom. But let’s pause for a moment: *why “accepted”?* In the name of freedom? If there is one thing that’s never been observed by anyone, if there is one basic *concept* that’s driven the dynamics of Western civilization in the wake of the Enlightenment, isn’t it *freedom*? How can I, as an individual, accept failure and suffering in the name of freedom if I have never reflected on what it means to be free, on what the economic and social conditions for freedom are, and if I have never come to the lucid conclusion that the society in which I live (and in which, incidentally, I may just have failed to fulfill my life’s expectations) indeed embodies the conditions for freedom to the fullest? In short, how can I “accept” my fate “in the name of freedom” if I have never *exercised my critical judgment* about what it means to be a free human being and about how empowering the economy in which I live really is?

If Hayekian co-evolution and its associated requirements of “local” thinking and “global” ignorance are to be interpreted by us as something other than mere chance (which could be reversed) or mere oppression of one class by another (which has to be denounced), surely Hayekian co-evolution *must be shown to be the result of a parallel process of co-reflection* through which we, as free human subjects, have consciously and lucidly

adopted the “requirements” voiced by Hayek “in the name of freedom.” If my discussion of the “suicide of the subject” in Chapter 3 is correct, it casts strong doubts on whether this particular process of co-reflection could be shown to be an actual human possibility.

Nevertheless, posing the question in these terms opens up a whole new range of opportunities for economics. I associate these opportunities with moving from mere “spontaneous consciousness” toward a much more “conscious spontaneity.” This will mean moving away from the mechanical-behavioral atomism of today’s complexity economics (and mainstream economics more generally). It will mean moving toward a view of the liberating economy as an evolutionary process that *should be inhabited by critically rational agents* who reflect on the kind of economy they want to have and on how to act so as to reach that desired state. Part II launches this alternative investigation.

Part II

Bottom-up Critical Theory

The logic of self-criticizing complexity

5 The use of critical knowledge about society

Creating a potential for social emancipation

On the basis of the developments of Part I, we can now address at least one of the two basic questions of Chapter 2, namely the theoretical and epistemological one: does mainstream economic theory contain a potential for social criticism, and if so, can it be oriented toward social emancipation?

Building consistent theories

A first step toward answering this question was already provided in Chapter 2. There, I suggested that how you interpret economics' ability to develop a critical potential depends on whether or not you explicitly take into account the agents' *emancipatory intentionalities* as well as the *critical capacities* with which they need to be endowed for these intentionalities to materialize. As Chapter 2 demonstrated in detail using a "case study" of extremely limited social change (the mere reallocation of initial resources, *ceteris paribus*), if the theorist neglects these intentionalities and capacities, she will run up against the following paradox. Suppose she's a left-wing progressive and wants to build a theoretical representation of a non-capitalist economy—say, the theory of an economy with self-managed firms and public institutions designed to plan productive investment (as in Schweickart 1996 or Albert 2003). If she uses the toolbox of mainstream economics, she'll be embarking on this journey without endowing the agents who, in her models, will make up this economy with the reflexive and motivational capacities which, alone, could explain how they could have *consciously generated* this non-capitalist economy starting from a capitalist market economy such as the one we have today.

In other words, mainstream theory fails to provide consistent behavioral "closure" of its models. Agents in those models are "always already" in the economic world designed for them, and they could never have been elsewhere. How to widen the scope of reflexivity so as to carry out this "closure" is precisely what Horkheimer (1937a: 250) seems to have in mind when he writes that "The critique of economism [...] consists not in

turning away from economic analysis but in engaging in it more fully and along the lines indicated by history.” To “engage more fully” in economic analysis in the sense of Horkheimer would mean, on the part of the economist, to remain in line with the three phases of judgment identified in Chapter 2 and the four steps of modeling identified in Chapter 3. Therefore, if you’re going to aim at consistency or “closure,” you should perform the following threefold gesture of reflection:

- 1 As part of the phase of normative judgment, construct *a model of the “just society” or of the “good society” that reflects what you view as the highest aims of practical reason*. In doing so, take into account the interdependence between practical reason and the material conditions which it generates and which, in turn, constrain it.
- 2 As part of the phase of theoretical judgment, insert into the model *the reflexive and motivational capacities that the agents must have* in order to build the economy (that is, both the modes of interaction and the corresponding subjective structures) represented by the model. If such capacities are neglected, you create an unexplained tension between two parts of your theoretical representation. You place your own model-agents outside of the representation of the social world to which they nevertheless belong by assumption. In doing so, you make your model-agents *abstract*.
- 3 As part of the phase of practical judgment, move from the theoretical representation to the *practical evaluation of the degree of economic, political, psychological, and organizational feasibility* of phases 1 and 2 in your society as it exists at the current historical moment.

The only phase that is being developed nowadays is phase 1. But even this phase is usually implemented in a partial and truncated fashion. In this truncated version, it reduces to so-called “normative economics.” The mainstream normative economist constructs atomistic models by combining standard axiomatic constructions with certain moral traditions which she views as acceptable. Normative economics does not question the atomistic framework. It assumes that—as we saw in Chapters 2 and 3—the agents are inhabited by built-in routines and unconscious, order-generating principles that don’t require any reflexive and critical capacity on their part. These routines and principles built into the automata-individuals don’t even require any cognitive capacities other than those inherent in strategic interaction and in processes of so-called “learning.”

So by postulating such selectively open quasi-monads, mainstream normative economics fixes the structure R of reflexive capacities of the agents. It then deduces an optimally desirable, “normative” model $M(R)$ about what sort of economy would be the most empowering and emancipating given agents “as they are.” But if phase 1 were really carried out in full, instead of being truncated, we would instead have a model M^* that leaves

open agents' abilities, and we would deduce from M^* a corresponding structure R^* of agents' reflexive capacities. The task would then be to use phases 2 and 3 to see precisely how R^* would flow from M^* .

In phase 2, the aim would therefore be to construct a "self-sustaining" model. By this, I mean a model which, if it were taught to agents endowed with certain reflexive capacities R yet to be defined, these agents would "recognize themselves" in the agents of the model and would *consciously choose* to put into place the institutions and the modes of interaction advocated by the model. Of course, in principle, a particular case could be the atomistic framework itself. To vindicate this framework, one would have to show which reflexive capacities would be required if thoughtful agents who are able to ask normative questions—which is ruled out in the current state of phase 1—are to *consciously make themselves into selectively open quasi-monads*, with all the extremely stringent cognitive and reflexive limitations this would imply. As indicated in Chapters 2 and 3, such a choice is likely to mean a drastic and ultimately non-rationalizable self-limitation of reflexivity. In other words, such agents would in fact, and trivially, have to *always already have been* quasi-monads designed (by whom?) to function blindly within the atomistic world inherent in mainstream theory. So to simplify, phase 2 consists in mapping into each normative model-society M a structure $R(M)$ —possibly a trivial or degenerate one as in the limit case of the mainstream atomistic models—of reflexive and critical capacities that sustain the choice of this very model by the agents that people it.

Finally, in phase 3 the aim would be to analyze, from the historical, sociological, political, and psychological angles, the actual human possibility of combining 1 and 2. In other words, one would ask whether it is at all possible to detect in the currently existing agents (including the theorist himself) non-trivial reflexive dispositions $R^*(M^*)$. This would mean agents who, by using to the fullest the whole spectrum for reflection and criticism offered by their dispositions, would end up realizing the theoretical model M^* considered to be maximally desirable in 1. Obviously, this third phase is the one that relies most heavily on invisible and unobservable elements. You can never exclude from M^* certain characteristics which seem *utopian* with respect to the current, empirically existing society. Horkheimer and Marcuse locate such characteristics at the level of the "social imagination" (see also Bloch 1959 or Baczkowski 1984). Therefore, the real historical possibilities of realizing a model M^* do not necessarily coincide with the empirical possibilities reported by positivist historians or sociologists in questionnaires, studies, and polls.

From "one-dimensional Man" to the critical economic agent

Marcuse defined a sort of ultimate stage in which these three phases would be entirely compatible with one another, that is, in which the prevailing conception of a "liberating" economy would generate individuals with

reflexive and motivational capacities such that this economy would become fully feasible historically.¹ True to his Hegelian and Marxian upbringing as well as to the continental Enlightenment project, Marcuse suggests that when the three phases become mutually compatible, human Reason attains its full realization. In such a fully rational economy, the highest possible degree of empowerment is attained, and philosophy is “realized”: it disappears as an autonomous discipline. Marcuse associates with this fully emancipated economy a particular social ordering mechanism. Social order no longer comes about blindly through the unconscious contributions of ignorant automata. Once the three phases are compatible, social order comes about through the “free decision of the knowing and fighting subject”:

If by reason we mean the organization of life according to the free decision of the knowing person, then *reason commands the creation of a social organization in which individuals jointly create the rules of their lives according to their needs*. In such a society, the realization of reason would also imply the disappearance of philosophy. [. . .] The philosophical construction of reason becomes obsolete through the creation of the reasonable society. *The philosophical ideal, the better world and the true being all flow into the practical goal of the fighting Man*. In that way, this goal receives a human content [instead of being merely ideal and abstract].

(Marcuse 1937: 109–10, italics added)

Given Marcuse’s Hegelian background, it’s hardly a surprise that *at the formal level* his ultimate vision doesn’t differ at all from that of Hayek or Fukuyama. In both cases, there is the idea that practical reason, after disentangling itself from the “false” limitations imposed on it by certain modes of economic organization during the course of history, eventually fulfills its potential in the form of “the reasonable society.” For Hayek and Fukuyama as much as for Marcuse, it is indeed “the fighting Man” who attains the real content of this reasonable society. He does so through a series of struggles which appear as successive historical refutations of “unreasonable” economic systems. However, contrary to Marcuse (1964), Hayek and Fukuyama believe that “one-dimensional Man” is already “the last Man” because he is the gradual result of the historical path of rationality—a path which Fukuyama (1992) labels “unilinear.” From a Hayekian perspective, this can only be a trajectory whose shape escapes the conscious will of any individual or group. Marcuse believes precisely the contrary, taking any “blind” evolutionary process as the hallmark of a society in which people don’t know what world they’re living in.

There is an analogy here, as we saw in Chapters 2, 3, and 4, with the atomistic body of mainstream economic theory. Even in its more sophisticated versions which include dynamic interactions and evolutionary trajec-

tories, this body of theory remains “one-dimensional” because it makes no explicit room for the agents’ *critical rationality*. This kind of rationality relies heavily on the formation of critical judgments. But no critical judgment can be formed without the agents spending time and resources. What for? Well, they have to spend time and resources in order to maximally understand *both* the economic world in which they live *and* the possibilities they have for freeing themselves from its shackles. Forming this critical judgment means reflecting on the economy and, consequently, becoming “literate” in economics and social science more generally. How likely is it that economic agents endowed with critical rationality will recognize themselves in a teaching of economics for which they have to spend time and resources but which presents them merely as more or less sophisticated monads? As already indicated, I am convinced that the probability is very close to zero. As we just saw again in our discussion of phase 2, a quasi-monad, even if it is endowed with capacities for calculation and with (bounded) procedural rationality, is essentially unreflexive and above all uncritical. In other words, it is unconcerned with social possibilities other than those which are already inscribed in the “environment” about which it selectively collects “information.”

This is the sense in which the body of mainstream economics today has become *structurally non-critical*. Even when individual theorists are well-intentioned, the tools they use do not allow them to carry out the “closure” (which existed at the eve of the bourgeois age) that consists in instilling into economic agents the critical capacities required for them to *reflexively internalize the theoretical models that represent them*.

The danger of anti-criticism

Thus, not finding its own foundation in the rationality of the agents whose representation it draws up, mainstream economics is apt to become *anti-critical*, or even anti-emancipatory, at any moment. Historical movements of protest or social discontent will find no consistent rationalization within the theory, and hence will tend to be seen as “irrational” or “unrealistic” by any theorist who remains rigorously attached to the mainstream toolbox. Of course, the problem does not lie in the fact that an economist sticks to a particular set of tools and methods; most, if not all, economists do this, whatever their theoretical paradigm. The problem lies in the fact of sticking to a mode of representation that is virtually impossible for critically rational economic agents to internalize consciously. In fairness, I should point out that mainstream economics is not the only paradigm suffering from this problem. But given its powerful dominance, it certainly shouldn’t be allowed to get away with such a lack of closure.

By “lack of closure,” I mean that the mainstream economist can—and frequently does—support, or approve of, a social movement or utopia only by becoming inconsistent with respect to his own theoretical framework.

Where *inside* the mainstream framework is the mechanism that would generate those “fighting Man” capacities which mobilize the individuals whom the mainstream claims to be supporting? *Only a body of theory which represents economic agents as critical can be internalized reflexively by critical individuals.* This insight carries a troubling and, up to today, largely undiscovered consequence. If a body of theory that represents agents as uncritical is going to be considered relevant by the individuals in a society, these individuals have to be *induced within social life, through education, to view themselves as uncritical agents.* Consequently, to be socially legitimate, mainstream economics needs to rely on a socialization and an education that transforms individuals into spectators of social mechanisms which escape their understanding, let alone their active intentions. The same is true of Hayekian economics, as we saw in Chapter 4. But then, as we also saw, there is little difference at that level between Hayek and today’s mainstream complexity theorists.

So any economic theory has to justify its claim to being historically congruent. This is what classical and neoclassical economics did when it was in its “emancipatory phase,” that is, when it served as a basis for the bourgeois critique of pre-bourgeois economies. As Horkheimer puts it, the strongly limited kind of reflexivity associated with the bourgeois agent coincides with a positivistic posture—be it a sophisticated one—on the part of the bourgeois theorist:

Reflecting on themselves men [endowed with a bourgeois consciousness] see themselves only as onlookers, passive participants in a mighty process which may be foreseen but not modified. Necessity for them refers not to events which man masters to his own purposes but only to events which he anticipates as probable. Where the interconnection of willing and thinking, thought and action [characteristic of critical consciousness] is admitted as in many sectors of the most recent sociology [and one might add: as in the more sophisticated standard economic theory], it is seen only as adding to that objective complexity which the observer must take into account.

(Horkheimer 1937a: 231–2)

One can hardly doubt that evolutionary game theory, or more broadly the “new evolutionary microeconomics” (Potts 2000), is in many ways the most promising avenue for mainstream theory. It certainly makes significant advances possible *within the atomistic body of theory.* These advances may perhaps even be Kuhnian “scientific revolutions” (Lesourne *et al.* 2002: 1).

It is equally clear, however, that such advances are not sufficient when viewed from the particular angle of the critical scientist. To my mind, Horkheimer’s project of replacing “traditional” science by critical science has to acquire much more visibility within economics departments. If this is to be so, we need to give up the exclusive privilege of the schemes of “spectator”

modeling that characterize mainstream theory. We have to investigate more deeply the synergies between history, economics, psychology, political philosophy, and concrete activist politics. These synergies can't be introduced simply from the vantage point of a fuzzy kind of "interdisciplinarity." They need to aim hard at rejecting the non-critical posture of the mainstream economist who claims she can stand outside the economy by taking the latter as a mere "object," even if it is a complex object.

Contrary to the particle or the primate, the economic agent cannot simply be an object of study. If he is endowed with critical capacities, he knows he is acting within an economic context and within a set of theories on the economy he may want to alter. Mainstream economics is as yet unable to grasp the motivations and the reflexive processes at work in this area. In part, this is because such critical reflection does not show up in regular behavioral schemes observed "from outside" or "from the top down." Chapters 6, 7, and 8 will offer an in-depth discussion of the foundations and the content of a modified economic approach that makes room for the agents' critical rationality in their reflection and in their day-to-day interactions.

The end of theory?

A lot depends on a non-positivistic attitude toward the agents and the economic world they co-organize. As we saw in Chapter 4, co-evolution and co-reflection go hand in hand, and in a genuinely liberating economy, critical reflection on the economy is not the privilege of a few economists. Does this mean we should fear that the end of theory is near? I don't think so. We should simply reassert that theory in general, and economics in particular, is *a practice that has social effects*. Theories influence the way you and me, all of us, perceive ourselves and the macro-social framework in which we act. "The economy" is a theoretical concept, not an empirical thing that's easily visible and perceivable. For each of us as agents, "the economy" is a framework that is much broader than simply the "informational environment" we try to grasp when we act strategically and adapt to each other's strategies. You may act the same as me at the behavioral level, but the reasons we both have for acting may be profoundly different. You may buy a new car while despising the market economy in which you live and have to use a car to get to your wage job, whereas I may be enthusiastically in favor of capitalism. If this is so, then the theories that attempt to describe the way we, as agents, interact need to take into account not only non-factual but also often non-observable realities. There are realities which aren't directly empirical. They have to do with agents' desires *to perceive the possible that isn't yet visible and to change what's allegedly unchangeable*. Horkheimer understands this as follows:

The critical theory of society [. . .] has for its object men as producers of their own historical way of life in its totality. The real situations

which are the starting-point of science are not regarded simply as data to be verified and to be predicted according to the laws of probability. Every datum depends not on nature alone but also on the power man has over it. [. . .] In thus relating matter—that is, the apparently irreducible facts which the scientific specialist must respect—to human production, the critical theory of society [protests] against the adoration of facts and the social conformism this brings with it. [. . .] [The] basic activity involved is work in society, and the class-related form of this work puts its mark on all human patterns of reaction, including theory. The intervention of reason in the processes whereby knowledge and its object are constituted, or the subordination of these processes to conscious control, does not take place therefore in a purely intellectual world, but coincides with the struggle for certain real ways of life.

(Horkheimer 1937a: 244–5)

Taking my cue from Horkheimer, and without even necessarily adhering to Marxian class theory, I believe the representation of the economy conveyed by the mainstream economics that today dominates most departments stands as *one representation among many others, linked historically to the ancient, and by now antiquated, critical power of the atomistic-automatic way of life*. Mainstream economics is relative. It's a point in time. Those who still uncritically adhere to it have a choice. They can recognize this relativity and acknowledge mainstream theory to be a step in the long succession and/or overlap of theoretical bodies carried by history. Or they can throw all their strength into the battle for cognitive monopoly. This means that they'll claim to be the only ones who can “scientifically” assess social rules, the contents of educational programs, the need to repress demonstrations, and so on. And they'll try to do this until the real social world has become a replica of the atomized economy whose allegedly “objective” and “positive” representation the theory is constructing.

Either project could succeed. There is little need, I believe, to insist on how dangerous the second one is, since it *de facto* confiscates agents' critical rationality and acts as if it didn't exist. As a result, in this book I focus on the first project. I try to offer a revision of economic theory in the direction of critical theory. Therefore, I have to be able to show that such a revision is desirable and possible. This is what I will do now, in Parts II and III.

Clearly, such an in-depth revision of mainstream conceptions will mean relinquishing some of our hard identifications with certain cherished methodological positions. In an economy peopled by critically rational agents, the economist is just a counselor, not an All-Knowing Subject. So economists should not to become too identified with their own particular brand of economics. It is precisely this *principle of non-identification* that will be a key element of the vision that, after our long journey, will emerge in Part IV—the vision of economics as *a plural field of critical reflection*. In order to make full sense of this vision, we need to make extensive use of the idea,

implicit in Critical Theory, that the agents' knowledge and reflexive visions about the economy can shape the economy itself. Heeding this methodological imperative, we can gradually construct a "Critical Political Economy" which—so I hope—can serve as a starting point for a less uncritical (not to speak of anti-critical) economics.

The first step in this construction is to set up a conceptual framework within which social criticism and evolutionary dynamics can be made to intertwine. This is what Parts II and III will try to do. The key to this combination is that, in Critical Political Economy, economic agents will be viewed as participating in a dynamic interactive process whose norms they provisionally accept. If they didn't, they wouldn't have any foundation upon which to build their critically minded actions. But within the ongoing dynamic interactive process, they may seek to further mildly or radically subversive interests. This attitude of "*critical acceptance*" of the prevailing norms of one's economy will turn out to be absolutely crucial in my whole endeavor. Taking into account our capacities to "critically accept" a reality we dislike will require us to rethink, to a significant extent, the way in which rational agents unsatisfied with an economy go about their daily life within that economy.

Critical acceptance is one of the main aspects on which Hayek's economics—and, therefore, today's complexity economics as well—is fundamentally flawed. To understand why, let's briefly go back to Hayek and see how Horkheimer would have criticized his positions on knowledge and rationality. This is an artificial dialog, i.e., a dialog which I will engineer *ex nihilo* because the two thinkers never mention each other explicitly. However, as I explained in Chapter 1, understanding how Horkheimer *might have* criticized Hayek offers us a fruitful way to gradually flesh out Critical Political Economy and to inaugurate a vision of economics which doesn't reject complexity, but in which agents' critical rationality becomes central.

"Superstition" and the control of social forces

Philip Ball has suggested the following interpretation of Hayek's theoretical efforts in the 1930s and 40s:

How do we ensure that society is not just stable but moral? It is generally taken for granted in the West that the answer, or at least a good part of the answer, is to make society democratic. But this is a modern view; or at least, it has passed in and out of favor over time. The liberal democracies of Locke and Mill by no means represented the obvious political future of Europe in the 1930s, when it looked vulnerable both to fascism and to a warped and dictatorial socialism. Against such a backdrop we can understand why [. . .] Hayek felt compelled to write his famous defense of capitalist freedom, *The Road to Serfdom* (1944). But Hayek's critique of socialism, which he regards as the beginning of

an inevitable descent into totalitarianism, is not just a warning to beware of Hitler, Mussolini and Stalin. It also [. . .] addresses the crucial question that all democrats must ask: *how much* should they rule?
(Ball 2004: 580)

We know Hayek's answer to the "how much" question. He is convinced that one of our key virtues as free individuals ought to be our ability "to yield to forces which we neither understand nor can recognize as the conscious decisions of an intelligent being." More explicitly,

It was men's submission to the impersonal forces of the market that in the past has made possible the growth of a civilization which without this could not have developed; it is by thus submitting that we are every day helping to build something that is greater than anyone of us can fully comprehend. *It does not matter whether men in the past did submit from beliefs which we now regard as superstitious*: from a religious spirit of humility, or an exaggerated respect for the crude teachings of the early economists. The crucial point is that it is infinitely more difficult rationally to comprehend the necessity of submitting to forces whose operation we cannot follow in detail, than to do so out of the humble awe which religion, or even the respect for the doctrines of economics, did inspire.

(Hayek 1944: 210, italics added)

The implicit Hegelianism of Hayek's belief in cultural evolution has been sufficiently documented and discussed (see, for example, Dupuy 1992c). My own focus here will be different. It so happens that just around the same time, more precisely during a series of lectures delivered at Columbia University in 1946, Horkheimer stigmatized the philosophical perspective of action, counteraction, and interaction dear to orthodox Marxists but also to the Viennese economists (whom he never cites explicitly, however). It is striking that he, too, uses the word "superstition," as if he were echoing Hayek's earlier defenses of Reason as a competitive, interactively adaptive process. Let me quote Horkheimer at some length:

According to [subjectivistic] theories, thought [. . .] is a tool of all actions of society, but it must not try to set the patterns of social and individual life, which are assumed to be set by other forces. [. . .] Reason has never really directed social reality, but now reason has been so thoroughly purged of any specific trend or preference that it has finally renounced even the task of passing judgment on man's actions and way of life. Reason has turned them over for ultimate sanction to the conflicting interests to which our world actually seems abandoned. [. . .] Thus the individual subject of reason tends to become a

shrunken ego, captive of an evanescent present, forgetting the use of the intellectual functions by which he was once able to transcend his actual position in reality. These functions are now taken over by the great economic and social forces of the era. [. . .] [T]he impact of the existing conditions upon the average man's life is such that the submissive type [. . .] has become overwhelmingly predominant. From the day of his birth, the individual is made to feel that there is only one way of getting along in this world—that of giving up his hope of ultimate self-realization. This he can achieve solely by imitation. He continuously responds to what he perceives about him, not only consciously but with his whole being, emulating traits and attitudes represented by all the collectivities that enmesh him [. . .]. The method of negation, the denunciation of everything that mutilates mankind and impedes its free development, rests on confidence in man. The so-called constructive philosophies may be shown truly to lack this conviction and thus to be unable to face the cultural debacle. *In their view, action seems to represent the fulfillment of our eternal destiny.* Now that science has helped us to overcome the awe of the unknown in nature, *we are the slaves of social pressures of our own making.* [. . .] If by enlightenment and intellectual progress we mean *the freeing of man from superstitious belief* in evil forces, in demons and fairies, in blind fate—in short, in emancipation from fear—then denunciation of what is currently called reason is the greatest service reason can render.

(Horkheimer 1946: 8–9, 140–1, 187)

For Horkheimer, superstition resides not only in our ancestors' submission to religious myth or social hierarchy, but also in our contemporary submission to the many imperatives of *adaptive thinking*. This is because, by definition, that which has to be adapted to—the “context of action,” the “environment”—can easily become a reified entity.

In fact, Hayek's complexity approach gets its force precisely from reification. It confronts us with a hard question: how different is an interactively generated social context from a thunderstorm to which we adapt by opening an umbrella, or from a landslide to which we adapt by jumping to the side? Mainstream models of complexity economics and “social physics” based on statistical mechanics share this reification. In models of the spontaneous emergence of footpaths in a public park or of an individual's conscious attempts to go to a bar only when it is almost empty (see Ball 2004: 159–74, 415–22), each individual takes the environment generated by others' actions as a *thing* to be adapted to or instrumentally manipulated if possible, but never critically questioned. For Horkheimer, these would be instances of what he calls “*subjective reason*,” namely “the ability to calculate probabilities and thereby to co-ordinate the right means with a given end” (Horkheimer 1946: 5). In more contemporary parlance we would speak of instrumental rationality.

Hayek believes that instrumentally interacting individuals will co-evolve rules and customs which make their rule-bound instrumental interactions sufficient for the emergence of social order. Horkheimer believes that this processual approach to Reason relinquishes an equally important dimension of reason, namely what he calls “*objective reason*.” What jeopardizes objective reason is the Hayekian claim that objective knowledge is a totalitarian illusion of the human subject. For Horkheimer, in contrast, such a critique of “objectivistic” illusion has itself to postulate a non-illusory objectivity:

The subjective faculty of thinking was the critical agent that dissolved superstition. But in denouncing mythology as false objectivity, i.e. as a creation of the subject, it had to use concepts that it recognized as adequate. Thus it always developed an objectivity of its own. [. . .] The present crisis of reason consists fundamentally in the fact that at a certain point thinking either became incapable of conceiving such objectivity at all or began to negate it as a delusion. This process was gradually extended to include the objective content of every rational concept. In the end, no particular reality can seem reasonable *per se*; all the basic concepts, emptied of their content, have come to be only formal shells. As reason is subjectivized, it also becomes formalized. The formalization of reason has far-reaching theoretical and practical implications. If the subjectivist view holds true, thinking cannot be of any help in determining the desirability of any goal in itself.

(Horkheimer 1946: 7)

For Horkheimer, what underlies contemporary superstition is the mistaken belief in uncontrollable social forces. We become superstitious if we believe in the impossibility to discriminate non-instrumentally between worse and better societies: “Everyone is under the whip of a superior agency. Those who occupy the commanding positions have little more autonomy than their subordinates; they are bound down by the power they wield” (Horkheimer 1946: 158). The Frankfurt School rejects the complexity approach’s insistence on systemic constraints and blind emergence *because Horkheimer believes these concepts are being used to legitimize the market order and its co-evolved institutions by naturalizing them*. Adaptive competition is made to look as if it’s a fact of nature, or a natural fact of culture.

So those features of the social order which Hayek considers to be the chief virtue of liberal societies promoting “true” individualism are viewed by Horkheimer as the chief sign of alienation in a non-liberating society. In the earlier conference given in Frankfurt in 1937, which we already encountered in Chapter 2, he put this insight in no ambiguous terms, calling on his audience to recognize

the contradiction-filled form of human activity in the modern period. The collaboration of men in society is the mode of existence which

reason urges upon them, and so they do apply their powers and thus confirm their own rationality. But at the same time their work and its results are alienated from them, and the whole process with all its waste of work-power and human life, and with its wars and all its senseless wretchedness, seems to be *an unchangeable force of nature, a fate beyond man's control.*

(Horkheimer 1937a: 204, italics added)

In a crucial bid to harness the idea of the invisible hand toward what appears to him a less fatalistic standpoint, he offers a less naturalistic, more historical reconstruction of what Hayek views as the “data” of social interaction. As we saw earlier, for Hayek these “data”—preferences, technology, prices, customs, rules, and so on—are both subjectively changing and objectively circumscribed by the unchanging contours of the market order. Horkheimer realizes that this is indeed so and offers us a strikingly accurate characterization of the notion of social complexity. At the same time, he realizes that the *particular* sort of complexity which characterizes bourgeois capitalism is part of a historically situated economic and cultural system. There is no reason why the general features of that system should be—as Hayek was claiming, and as Fukuyama claimed again later—more immutable than the changing individual interactions which it encompasses and whose product it is:

The whole perceptible world as present to a member of bourgeois society and as interpreted within a traditional world-view which is in continuous interaction with that given world, is seen by the perceiver as a sum-total of facts; it is there and must be accepted. The classificatory thinking of each individual is one of those social reactions by which men try to adapt to reality in a way that best meets their needs. But there is at this point an essential difference between the individual and society. The world which is given to the individual and which he must accept and take into account is, in its present and continuing form, a product of the activity of society as a whole. [. . .] The opposition of passivity and activity [. . .] does not hold for society [. . .] in the same way as for the individual. *The individual sees himself as passive and dependent, but society, though made up of individuals, is an active subject, even if a nonconscious one* and, to that extent, a subject only in an improper sense. This difference in the existence of man and society is an expression of the cleavage which has up to now affected the historical forms of social life. The existence of society has either been founded directly on oppression or been *the blind outcome of conflicting forces* [. . .]. *In the bourgeois economic mode the activity of society is blind and concrete, that of individuals abstract and conscious.*

(Horkheimer 1937a: 199–201, italics added)

This last sentence is a good characterization of emergent phenomena, which no complex-systems theorist would disavow. We might express Horkheimer's point more succinctly in two steps. First, yes, the contemporary market society is indeed a type of "swarm" or "hive" (Kelly 1994: 4–28) whose overall shape and contours look more or less constant (they are "concrete") and are unconsciously supported by all of the myriad interactions of its individual members (they are "blind"). But, second, there's no reason to deduce from this seeming constancy that the emergent properties of these individual interactions could not be changed if the modes of interaction themselves (the "economic mode") could be altered. The "abstract and conscious" character of the individuals' activity comes from the fact that—as Hayek says things ought to be—individuals' consciousness is geared to day-to-day, situated activity on the basis of localized practical knowledge. This particular kind of activity makes them *appear to an observer* as abstract particles within a compound whose meaning eludes them.

This, as we know, is precisely the reason why, from a Hayekian perspective, social forces are fundamentally uncontrollable emergent properties. As we now see, this is also precisely the reason why Horkheimer objects to a Hayekian complexity perspective. What is striking, however, is that Horkheimer is not at all eschewing the emancipatory and empowering aims of liberalism. On the contrary, he admits that along the historical path of enlightened emancipation the political and economic liberalism of Adam Smith, to which Hayek is an heir, generated a society whose specific self-organizing properties embodied emancipatory aspirations and, at given points in the past, led to advances in autonomy. But he also says that this is no excuse for continuing to uncritically accept these properties today. There is no reason why we should espouse a Hayekian "submission to forces one cannot comprehend." We can both live in their shadow and criticize them. It's true that, in his own time, Horkheimer reached for Marxist concepts in order to express his own critique of bourgeois capitalism. However, in coherence with his own historicist stance, this is a largely contingent matter. He later moved away from Marxism without abandoning the call for a critique of bourgeois capitalism. In a short but very important preface added in 1968 to the re-edition of his essays of the 1930s and 40s, he explicitly avows that these essays

are dominated by economic and political ideas which no longer have any direct application; to relate them properly to the present situation requires careful reflection. [. . .] Thoughtless and dogmatic application of the critical theory to practice in changed historical circumstances can only accelerate the process which the theory aimed at denouncing. [. . .] *Under liberalism* the citizen could within limits develop his own potentialities; his destiny was within limits determined by his own activity. That all should have this possibility was what was meant by the demand for freedom and justice. As society changes, however, an

increase in one of these two is usually matched by a decrease in the other [. . .]. In such circumstances, to judge the so-called free world by its own concept of itself, to take a critical attitude towards it *and yet to stand by its ideas* [. . .] is the right and duty of every thinking man. [. . .] Despite its dangerous potential, despite all the injustice that marks its course both at home and abroad, the free world is at the moment still an island in space and time [. . .].

(Horkheimer 1968: v–ix *passim*, italics added)

Thus it is not liberalism *per se* which is a target for the Frankfurt School, but its (possibly self-organized and emergent) self-perversion into a mechanism that reduces individual autonomy and freedom and traps people inside *particular kinds of* systemic interdependence and “hive”-like organization.

Theoretical knowledge as a source of practical knowledge

In Horkheimer’s view, the formalization of reason as it eschews all pretensions to objectivity and retreats into radical subjectivism is bound to lead the otherwise legitimate fight against scientism into a dead end. So although Hayek may be right to be wary of the “abuse of reason,” he is misled by his own subjectivism. Here is why. If the dictates of subjective reason are obeyed, the rational agent ends up relinquishing all speculative reflection and all attempts to acquire a global standpoint on the economy. Reflection and critical reasoning seem illusory to him. Instead, his rationality becomes *truncated*. It imposes on itself a very limited scope. “Rationality” becomes synonymous with the mere processing and utilizing of information generated by, and required to optimally manage, situations of everyday life:

The view is abroad that reason is a useful instrument only for purposes of everyday life, but must *fall silent in face of the great problems* and give way to the more substantial powers of the soul. The result is the avoidance of any theoretical consideration of society as a whole. The struggle of contemporary metaphysics against scientism is in part *a reflection of these broader social tendencies*.

(Horkheimer 1932: 4–5, italics added)

Horkheimer pleads in favor of objective knowledge. This doesn’t mean the Frankfurt School is, in its comprehension of history, repeating the naïve Marxist belief in the “objective laws of history.” Social formations, i.e., the co-evolving complexes of goals and institutions which make up an economy in its structure, are clearly the result of complex individual interactions. However, the diverse individual goals and motives which drive these interactions *are usually “abstract”*: they don’t include a reflexive moment in which the individuals attempt to relocate their action within the economy as a whole.

As we saw in Chapter 4, it is precisely this abstract character of individual action which Hayek values supremely. He “protects” individuals’ motives and goals against objectivistic encroachment by claiming that social science isn’t meant to explain behavior at all. As we saw also, this is precisely the methodological stance which accounts for the soaring successes of statistical physics and complexity theory in mainstream economics. In fact, for Hayek this abstraction is the very hallmark of a non-scientistic social science that doesn’t subordinate individual freedom to some outside Reason. Horkheimer, on the other hand, would call the Hayekian view of social science downright superficial:

The task of describing facts without respect for nonscientific considerations and of establishing the patterns of relations between them was originally formulated as a partial goal of bourgeois emancipation in its critical struggle against scholastic restrictions upon research. But by the second half of the nineteenth century this definition had already lost its progressive character and showed itself to be, on the contrary, a *limiting of scientific activity to the description, classification, and generalization of phenomena* [. . .]. The result of science, at least in part, may have been usefully applied in industry, but science evaded its responsibility when faced with the problem of the social process as a whole. [. . .] Yet *social reality, the development of men acting in history*, has a structure. To grasp it requires a theoretical delineation of profoundly transformative processes which revolutionize all cultural relationships. The structure is not to be mastered by simply recording events as they occur [. . .]. The refusal of science to handle in an appropriate way the problems connected with the social process has led to superficiality in method and content [. . .]. *Every human way of acting which hides the true nature of society, built as it is on contrarities, is ideological*, and the claim that philosophical, moral, and religious acts of faith, scientific theories, legal maxims, and cultural institutions have this function is not an attack on the character of those who originate [these acts, theories, maxims, and institutions] but only states the objective role such realities play in society.

(Horkheimer 1932: 5–7 *passim*, italics added)

In other words, spontaneous everyday action—and, more generally, unreflexive action—of the kind put forward, for instance, by pragmatism and cognitivism is by its very nature geared to “hiding the true nature of society.” It is, in Marcuse’s vocabulary, abstract action. Marx called it alienated action. Hayekian economics is unable to detect abstraction or alienation because it postulates from the outset individuals to be sophisticated idiots. The label “ideological” is used by Horkheimer in the objective sense. It designates a way of thinking about the economy that *abstracts from the*

incoherence of the whole (which agents don't notice) in order to increase the efficiency or short-term performance of some of the parts.

So Horkheimer's attacks on the *philosophical use* of pragmatic competence and everyday knowledge can also be applied to Hayek and to mainstream economics. As I have already emphasized in Chapter 4, because of his continental roots Hayek is more of an Enlightenment humanist than are some of the proponents of pragmatism. Nevertheless, he believes that theory is somehow dangerous: most attempts to explain how the economy works and—worse still—how it ought to work possess an inherent violence toward individual consciousness. To Hayek theory is a form of encroachment. This means that the economist should take the agents' empirically observable or inductively inferable, ordinary knowledge as his sole guide to the variety of types of behavior. What distinguishes Hayek most from Horkheimer in this respect is that he doesn't take theoretical knowledge about society to be a first-hand category in behavior. Agents are assumed to evolve within their immediate environment. They don't look beyond it toward broader—let alone all-encompassing, “metaphysical”—horizons.

From a Horkheimerian perspective, this can't possibly be a principled position. There is nothing which *in principle* forbids an individual from attempting to acquire and use knowledge about the economy in which she lives and acts. Horkheimer would understand Hayek as claiming that such an attempt would merely be self-defeating. The individual would stumble upon the same problems of finite cognitive capacity which impel Hayek himself to abandon the aim of building a substantive theory of society. In other words, all this individual could do in the end is realize that her brain, like any other human brain including Hayek's and Horkheimer's, is unable to grasp and “comprehend” the whole of the ongoing social process. To this, Horkheimer would snap back, “How do you *know that?*” The individuals' actions are confined by Hayek to being inevitably abstract. They are also assumed to be adaptive, competitive actions of information gathering about “market data.” So, for all its purported subjectivism, isn't Hayek's method in fact itself an objectivist, “metaphysical” defense of a particular form of economy, and of particular forms of interaction between agents? From the perspective of the Frankfurt School, Hayek is in actual fact a metaphysician! This might come as a shock to some of his disciples, but he is indeed a metaphysician. Indeed, remember his many claims that the toughness of competition and the frustration of aspirations are an unavoidable trait of economic life. This is certainly metaphysics, if Horkheimer's following characterization of metaphysics is correct:

As a rule, metaphysical theories harmonize well with the belief that hardship is an eternal necessity for the great majority of men and that the individual must always surrender himself to the designs of the powers that be.

(Horkheimer 1937b: 132)

True enough, in the market economy the “designs” are actually designed by no one in particular. But the instruction to surrender to the powers of the market’s judgment is indeed a central part of Hayek’s thought, as we saw earlier. Genetic competence as well as acquired everyday knowledge, i.e., the whole content of what I have called “spontaneous consciousness,” are closely tied up with this kind of Hayekian subjectivist metaphysics. What, if anything, can undo the ties?

In reply, Horkheimer suggests what will turn out to be a key notion in this book. This is the simple idea that each agent has a “subjective interest in the unfolding of society as a whole” (Horkheimer 1937b: 163). This idea escapes the Hayekian objection of self-defeating, limited cognitive capacities because Horkheimer actually considers this non-everyday, subjective interest as *an alternative resource for individual action*:

As opposed to customary practice, the individual who is conscious of himself does not focus his attention merely upon the possibility of definite predictions and practical results [. . .]. When an *active individual* of sound common sense perceives the sordid state of the world, desire to change it becomes the guiding principle by which he organizes given facts and shapes them into a theory. [. . .] The meaning of theory for the *consciously acting individual* is quite different from its meaning for the empirical scientist. [. . .] Where [. . .] thought reaches beyond the given composition of social life, the theoretical pattern [. . .] is a construct of empirical elements which consciously reflects reality as seen from the standpoint of the far-reaching interests of the individual. [. . .] *The autonomously acting individual discerns unity and interdependence where the servile consciousness perceives only disparity, and conversely.*

(Horkheimer 1937b: 162–3, italics added)

Interestingly, Horkheimer’s “consciously acting individual” is very much like Hayek himself as a theorist. She is able to “discern unity and interdependence” where the non-reflexive individual “perceives only disparity.” Equally importantly, the converse is also true. In situations where the spontaneously acting individual in everyday life perceives superficial unity and trivial interdependence, the consciously acting individual perceives the actual disparity and complex interdependence. Mainstreamers bent on cognitive science, behaviorism, and “bounded rationality” may wish to dismiss this kind of characterization as unduly elitist. But they would then have to draw the full implication. Namely, that Hayek’s own theoretical work, too, is really just an elitist bird’s-eye overview of the morass of unreflexive, everyday actions of which he is alone in being able to make sense—if only by rejecting, as he does, the idea that anyone can “comprehend” the complex economic process.

Obviously, from an Enlightenment perspective, such elitism has to be avoided, even from a Hayekian perspective. You can’t disparage theory as

an “abuse of reason” and then offer your own theory of theory-less agents. The only alternative to “downgrading” the theorist is to “upgrade” the agents, as it were. This means that *the “subjective interest in the unfolding of society as a whole” has to be integrated into economics as a fully fledged category of rationality.* Therefore, as Horkheimer puts it, “What is needed is a radical reconsideration, not of the scientist alone, but of the knowing individual as such.” This, in turn, implies that we acknowledge “that there is a human activity which has society itself for its object” (Horkheimer 1937a: 199, 206). Through this specific activity, people form theoretical knowledge about their economy with a view to acting on that knowledge. It’s a *critical* activity that

is suspicious of the very categories of better, useful, appropriate, productive, and valuable, as these are understood in the present order, and refuses to take them as nonscientific presuppositions about which one can do nothing. The individual as a rule must simply accept the basic conditions of his existence as given and strive to fulfill them; he finds his satisfaction and praise in *accomplishing as well as he can the tasks connected with his place in society* and in courageously doing his duty *despite all the sharp criticism he may choose to exercise in particular matters.* But the critical attitude of which we are speaking is wholly distrustful of the rules of conduct with which society as presently constituted provides each of its members. The *separation between individual and society in virtue of which the individual accepts as natural the limits prescribed for his activity* is relativized in critical theory.

(Horkheimer 1937a: 207, italics added)

From a Horkheimerian perspective, the issue is not whether individuals in a Hayekian economy can or cannot exercise localized criticism in the everyday sense of Hirschman’s (1970) “voice,” such as complaints about products or working conditions, attempts to improve production or marketing methods, “quality circles,” and so on. Rather, the issue is whether individuals are or are not developing a theoretical picture of what is wrong in the economy in which they live and what can be done about it. So *even in a Hayekian view of the economy as unfolding dynamically through individual interactions, one of the activities which individuals might be busy with is the acquisition of a “view of the economy.”* As I will claim in Chapter 6, there is no essential incoherence in this: contrary to what Hayek thinks, agents exercise critical judgment about the whole; and contrary to what Horkheimer thinks, the resulting interactive process is still uncontrollable.

As I have already highlighted in Chapter 2, Critical Theory is the philosophical framework, developed by Horkheimer, Adorno, Marcuse, and others in the 1930s in Frankfurt, which places at the heart of social science the idea that a genuinely liberating society is one in which people critically reflect on a better society and try to act on that aspiration.

Utopian aspirations and “disordering potentialities”

From a Hayekian vantage point, the economy is “liberating” when agents can compete uncritically for marketable resources. From the vantage point of the Frankfurt School, this is the epitome of an alienating society. How does this affect the picture one might have of legitimate aspirations in a capitalist, competitive, “liberating” market economy? In his 1946 lectures, Horkheimer discusses the changes in attitudes inside the labor movements over the first half of the twentieth century. What he has to say about them might well apply even today:

The workers, at least those who have not gone through the hell of fascism, will join in any persecution of a capitalist or politician who has been singled out because he has violated the rules of the game; *but they do not question the rules in themselves.* They have learned to take social injustice—even inequity within their own group—as a powerful fact, and to take powerful facts as the only things to be respected. *Their minds are closed to dreams of a basically different world and to concepts that, instead of being mere classification of facts, are oriented toward real fulfillment of those dreams.* [. . .] At the present time, labor and capital are equally concerned with holding and extending their control. The leaders in both groups contend to an increasing extent that theoretical critique of society has become superfluous as a result of the tremendous technological progress that promises to revolutionize the conditions of human existence. The technocrats maintain that superabundance of goods produced on super-assembly lines will automatically eliminate all economic misery. Efficiency, productivity, and intelligent planning are proclaimed the gods of modern man

(Horkheimer 1946: 151–2, italics added).

This passage shows, importantly, that Horkheimer is certainly no fetishist of “intelligent planning.” It also calls to our attention the fact that what matters centrally to Critical Theory is that individuals be able to form rational utopian aspirations and to actualize them within the economic process. By definition, such aspirations cannot be grounded in a positive description of an economy that doesn’t yet exist. In addition, no collective move toward a new economy can be “intelligently planned.” Therefore, *practical historical struggles* are the only possible way by which any agent’s rational aspirations to a new social world can be actualized.

The conceptual systems of classificatory understanding, the categories into which dead and living things, social, psychological, and physical phenomena have all been absorbed together, the division of objects and of judgments on them into the various pigeonholes of the special areas of knowledge—all this makes up the apparatus of thought as it has

proved and refined itself in connection with the real work process. This world of concepts makes up the consciousness of most men, and it has a basis to which its proponents can appeal. *The concerns of critical thought, too, are those of most men, but they are not recognized to be such.* The concepts which emerge under its influence are critical of the present. The Marxist categories of class, exploitation, surplus value, profit, pauperization, and breakdown are elements in a conceptual whole, and *the meaning of this whole is to be sought not in the preservation of contemporary society but in its transformation into the right kind of society.* [. . .] Above all, however, critical theory has no material accomplishments to show for itself. The change which it seeks to bring about is not effected gradually, so that success even if slow might be steady. [. . .] [T]he first consequence of the theory which urges a transformation of society as a whole is only the intensification of the struggle with which the theory is connected.

(Horkheimer 1937a: 218–19, italics added)

This doesn't mean that Horkheimer is advocating yet another collapse into interactionist pragmatism. As he shows in his discussion of the internal limitations of Kantian rationalism (Horkheimer 1937a: 202–8), and as he reemphasizes in the late 1960s (Horkheimer 1968), the “concerns of critical thought” of which he speaks here can never be divorced from the duty “to judge the so-called free world by its own concept of itself, to take a critical attitude toward it and yet to stand by its ideas.” However, as the above passage shows, judging the realizations of liberal societies by their own conception of themselves doesn't imply that you can only advocate “gradual” or “steady” change. The revolution/reform issue is left open by Horkheimer. Nevertheless, all reforms *or* revolutions will have one thing in common: they will translate agents' aspirations for change into a “struggle” between (classes of) agents.

Now, it's true that social struggle is bound to require certain practical skills such as shrewdness, patience, clear vision, strategic *finesse*, and so on. But the actors in the struggle certainly don't use these skills in order simply to fit into the prevailing scheme of things. The critically minded revolutionary or activist in a capitalist market economy isn't out to get better wage-work, to earn a higher wage, or to obtain better education for her children so that they can become productive capitalist individuals. She's out to cognitively empower her fellow citizens in order for them to criticize and then overturn the scheme of things. To do this, she makes use not just of a shrewd positive description of the economic mechanisms as they are, but of a critical theory of the economy—or what later on I'll call a *critical description* of the economy.

Indeed, one of Horkheimer's key claims is that the worldview embedded into any critical theory of the economy is, in and of itself, a tool for action. We saw earlier that he laments that pragmatic interactionism has superseded

contemplative thought and objective reason. This lament, however, is no apology of passivity. It is not incompatible with his present emphasis on practice and struggle. What Horkheimer objects to the formalization of reason and the pragmatic emphasis on gradually evolved practical rules is not that they are “practical.” It’s that they tend to split reflection and action off from any aspiration that does not remain compatible with the existing practical rules being used by everyone. Inevitably, the agents’ minds then get estranged from any thoughts and theories that fundamentally challenge these rules themselves.

Agents who limit their reflexive investigation in this way omit a crucial aspect of free human reason, namely that “the *critical acceptance* of the categories which rule social life contains simultaneously their condemnation” (Horkheimer 1937a: 208, italics added). *This notion of critical acceptance as condemnation is absolutely central to the Frankfurt School’s critical endeavor.* I also documented Horkheimer’s skepticism vis-à-vis the intelligence of social planning. So while being Marxists, the Frankfurt School were anything but a bunch of top-down totalitarians. The critical acceptance of practical norms means that the individual acts according to these norms while consciously attempting to subvert them. The agent is not simply—as Hayek would advise him to do—submitting to forces beyond his comprehension which, having made the rules evolve into the present, might also “blindly” make them evolve into the future. Living in a complex economy characterized by uncontrollable, emergent phenomena is no excuse for relinquishing your critical aspiration to a *different and better* complex economy.

So when we fully exercise the freedom of our reason, our “dreams of a basically different world” aren’t simply contemplative entities floating around in a corner of our otherwise pragmatic and rule-following minds. In a genuinely liberating economy that hasn’t destroyed people’s aspirations, such “dreams” are guides to practical action, on a par with the dictates of competition and the need to adapt to innovations. In a liberating economy, dreams of a *different* world are an integral part of what it means for an individual to be pragmatic and rule-abiding in *this* world. They mean a critical acceptance of the rules, hence a condemnation of them in the name of a “basically different world.” As a result, the scourge of alienation, which Horkheimer defines as “the separation of value and research, knowledge and action” (Horkheimer 1937a: 208), can be overcome in a way that it cannot in a Hayekian framework. A non-alienated agent isn’t someone who already lives in the world of his dreams; it’s someone who critically accepts his present world, i.e., who seeks out ways to use the present as a stepping stone toward a *consciously different future*.

Now, not just any dream will do. You need to formulate your aspirations out of a lucid critique of the way the economy works here and now. You have to avoid mere alienated daydreaming, which is no rational alternative to alienated immersion in “the facts.” To become a lucid dreamer, the

individual has to move toward *critical theorizing*. This means, first, operating a move of *self-discovery*, for “the thrust toward a rational society, which admittedly seems to exist today only in the realms of fantasy, is really innate in every man.” It means, second, operating a move of *cognitive displacement*, for critical theorizing “is not concerned only with goals already imposed by existent ways of life, but with men and all their potentialities” (Horkheimer 1937a: 245, 251).

What exactly does this notion of “potentiality” encapsulate? Arguably a potentiality can only ever be *perceived* and acted on if it is already in some sense actualized, that is, if it is no longer merely potential. We know that this was, in fact, one of the core contentions which separated Popper and Adorno in the conflict around positivism in the early 1960s (see Popper 1962; Adorno 1962). The problem becomes even more complicated when we add to individual potentialities the crucial dimension of collective potentialities, where well-known collective-action problems (Hardin 1982) as well as questions of logical consistency (Elster 1978) intervene. It would be exaggerated to claim that Horkheimer’s discussion contains answers to these problems; obviously, it doesn’t. However, his objective at this point is not to provide an exact theory of how human potentialities—both at the individual and at the collective level—could be uncovered. Rather, in an intellectual climate where the very notion of *ex ante* perceivable potentiality suffers from neglect (especially on the part of pragmatists and positivists), his goal is to insist that this notion must lie at the heart of social science.

There is an important feature of Horkheimer’s thought that makes him particularly well suited as a sparring partner for Hayek and today’s mainstream complexity economists. Despite his bid to displace unintended consequence with intended consequence and adaptive thinking with actively critical thinking, Horkheimer—in large part because of his Marxist anchoring—upholds a *fundamentally evolutionary view* of society and history. He does occasionally go into aspects of dialectical materialism, but this should not deter us from realizing that, as I have already emphasized earlier, this contingent use of Marxist categories is no absolute constraint on what Critical Theory can deliver. You can retain the aims of Critical Theory without Marxism. (The work of Jürgen Habermas sufficiently testifies to this.)

“Struggle” does not necessarily imply dialectics, since struggles may indeed fail to bring about what they intended. There is no necessary dialectical directionality in history. This may be a blow for simplistic Marxism, but from a Horkheimerian perspective, it should actually be welcome and helpful. If we are eschewing macro-law dialectics, as is right and fitting, we should *also and by the same token* avoid fetishizing any specific form the Invisible Hand might take. Adam Smith was a victim of Invisible-Hand fetishism when he claimed to explain all major shifts in historical conditions by the unintended consequences brought about by agents pursuing goals completely unrelated—or even inversely related—to the end result (see, for

example, Muller 1993: 113–30). What Smith, and Hayek after him, is attached to is the idea that agents “blindly” generate aggregate results that they hadn’t ever thought of because the aggregate results are located at an analytically distinct level from agents’ goals.

But what if the reason why aggregate consequences differ from the goals of agents is that these agents are interacting by consciously following their respective dreams of a different economy, an economy fundamentally distinct from the one in which their interactions were taking place? In either case, the consequences may be unintended, but they are likely to be *differently* so when individuals are interacting on the basis of their respective everyday knowledge and when they are interacting on the basis of their respective critical views about what has to change in society as a whole. *To avoid fetishizing the Smithian Invisible Hand (and also the Marxian Visible Hand of central planning), shouldn't we be looking for a Horkheimerian Invisible Hand?* In a sense, this is what this whole book is concerned with. Horkheimer expresses this aim in a crucial passage:

the idea of a future society as a community of free men, which is possible through technical means already at hand, does have a content, and to it there must be fidelity amid all change. In the form of an insight that the dismemberment and irrationality of society can now be eliminated and how this is to be accomplished, this idea is constantly being renewed amid prevailing conditions. [. . .] Out of the obscure harmony between being and thought, understanding and sense perception, human needs and their satisfaction in today’s economy, *there will emerge in the future age the relation between rational intention and its realization.* The struggle for the future provides but a fragmentary reflection of this relation, to the extent that a will which aims at the shaping of society as a whole is already consciously operative in the construction of the theory and practice which will lead to it.

(Horkheimer 1937a: 217–18, italics added)

Remember that Horkheimer is in fundamental agreement with an evolutionary approach. As a result, we can express his point as follows. The task of Critical Theory is to uncover potentialities which will impel individuals to act in such a way that the previously evolved rules and customs may no longer be fit to organize order. When looked at through the lens of the existing rules and customs, agents seeking a “fundamentally different world” may behave in ways that will appear if not like random walks, then at least like strongly erratic “noise in the system.” In that sense, what Horkheimer is attempting to convey to us is the idea that our critical acceptance of current norms is apt to make us uncover, and act upon, *disordering potentialities*. (In Chapters 8 and 9, we will study these disordering potentialities more precisely under the headings of “rational non-conformism” and “conscious disadaptation.”)

Critically oriented interaction and “conscious spontaneity”

Apparently, what comes out of this discussion is in radical opposition with what we have concluded for Hayek. In Chapter 4, we saw that the lack of individual control over, and even the lack of individual comprehension of, “compositive” social phenomena was a necessary condition for a liberating economy. In contrast with that apology of the unexamined economic life, Horkheimer appears to be much more in line with the traditional aims of philosophy and, in particular, the Socratic ideal of the *examined* life. He rejects the cognitive myopia of Hayekian agents. This is because he is deeply skeptical toward all metaphysical arguments that strip human agency of its aspirations to consciously shape the collective destiny. Hayekian cognition is intentional only in a superficial sense compatible with behaviorism and even with a view of agents as automata-individuals. By contrast, Horkheimerian cognition is *empowered* cognition. It is intentional in the sense that agents constantly derive their orientation from a conscious, deliberately critical experience of interactions. We are thus led to shift from “spontaneous consciousness” to “*conscious spontaneity*”:

The existence of society has [until today] either been founded directly on oppression or been the blind outcome of conflicting forces, *but in any event not the result of conscious spontaneity on the part of free individuals.* [. . .] [T]o the extent that the subject does not totally isolate himself, even as thinker, from the social struggles of which he is a part and to the extent that he does not think of knowledge and action as distinct concepts, necessity acquires another meaning for him. If he encounters necessity which is not mastered by man, it takes shape either as that realm of nature which despite far-reaching conquests still to come will never wholly vanish, or as *the weakness of the society of previous ages in carrying on the struggle with nature in a consciously and purposefully organized way.* [. . .] The struggle on two fronts, against nature and against society’s weakness, is part of the effective striving for a future condition of things *in which whatever man wills is also necessary and in which the necessity of the objects becomes the necessity of a rationally mastered event.* [. . .] The claim that events are absolutely necessary means in the last analysis the same thing as the claim to be really free here and now: resignation in practice.

(Horkheimer 1937a: 200, 230–1, italics added)

In the framework of Critical Theory, “conscious spontaneity” is not a metaphysical category. Spontaneity here refers, as it does in Hayek, to the basic fact that any cognition is the complex result of experience and, in particular, interactive interpretation. As we saw, the individual’s “subjective interest in the unfolding of society as a whole” is not merely speculative, even though it isn’t an interest in any empirically observable “data.” The

unfolding of society toward a structurally different social world always has to be envisaged by the individual as leading *through the practice of social struggle*.

In that sense, as the last sentence of the above passage highlights, Horkheimer would claim that Hayek's way of viewing cognition makes individual actions ideological. Claiming, as Hayek does, that individuals should be seen as fully free interactors in a complex adaptive system, regardless of which cultural mechanisms "designed" the rules of that system, hides the truth about that system. Not having been *thought through*, the system actually creates a cumulative advantage for those who have the strongest pragmatic skills for harnessing its undesigned complexity. In this context, "thinking through" (*durchdenken*) is not an individual but a collective concept. It designates a process of accumulated practical knowledge which arises when agents (a) experience their own and others' social suffering in the economy (for instance, Hayek's "market suffering") and (b) try to comprehend, and then undo, the causal processes which create that suffering (for instance, competition and capital accumulation).

Such cumulative experience is necessarily, at least in part, acquired in interaction and it is, in that precise sense, a kind of spontaneity. However, spontaneously experiencing suffering or dissatisfaction and trying to understand and undo its causal processes always introduces, along with the spontaneity of the experience, a *radically investigative and therefore reflexive component*. This creates a sort of distance from the experience, within that experience itself. This distance is the very essence of going beyond what is merely "given," of living in a style of "critical acceptance." Horkheimer believes, as do all members of the Frankfurt School, that this investigate-reflexive component of experience coincides with the individuals' efforts to acquire an appropriate critical theory of the economy. The specific kind of enacted knowledge that emerges is one in which "the world" (which constantly creates the context for spontaneity) and "the subject" (who constantly tries to make this spontaneity more conscious and deliberate) *co-define each other through theory-mediated, reflexively partisan interaction*:

When an active individual of sound common sense perceives the sordid state of the world, desire to change it becomes the guiding principle by which he organizes given facts and shapes them into a theory. The methods and categories as well as the transformations of the theory can be understood only in connection with this taking of sides. This, in turn, discloses both his sound common sense and the character of the world. Right thinking depends as much on right willing as right willing on right thinking. [. . .] The tendencies and countertendencies out of which the historical world is constituted represent developments which cannot be grasped without the will for a more human existence, a will which the subject must experience, or rather produce, within himself.

(Horkheimer 1937b: 162–3, italics added)

Conscious spontaneity has at least two crucial features. The first is that, just like Hayek's spontaneous consciousness, it does not immediately demand complete realization of whatever critical theory the individual has acquired. Horkheimer (1937b: 162) is well aware that "thought has to produce a picture of living things in which the functions of the single parts and the whole become clear only at the close of the intellectual process." This, as we will see later, has significant implications for the shape a *legitimate* critical theory of the economy can have. The second feature of conscious spontaneity is that nothing forbids the critical theories acquired by agents from aiming to be scientific in the Popperian sense. A critical theory of the economy can start from possibly falsifiable nomological statements and go through logical deductions all the way to falsifiable observation statements. The constraint which this creates, however, and which is highly problematic in a Popperian approach, is that falsifiers will have to contain both directly *and non-directly observable* empirical data, namely data about "visible facts" as well as data about "factual potentialities." As Raymond Geuss (1981: 88–95) has shown, this is no simple matter. So all critical economic theories used by consciously spontaneous agents may not be scientific in the Popperian sense. This is no reason for forbidding their use, or calling it "irrational."

On the other hand, a serious Critical Theory should avoid the pathology of "anything goes." Can the domain of legitimate critical theories be narrowed down? Can the types of empirically admissible factual potentialities be limited? One way in which this can be done may be to impose constraints on what constitutes a legitimate critical attitude toward your economy. This means narrowing down the scope of legitimate "critical acceptance." Michael Walzer (1987, 1988) has suggested a way of doing this. I disagree with it, but explaining my disagreement will be instructive.

Walzer's idea is that any legitimate critical theory has to draw its persuasive force from its anchoring in the pre-existing values of the "community." In fact, this is not very different from Horkheimer's idea that critical theorizing has to work with the ideas of liberalism and criticize their current form of implementation while sticking to their core message. However, upon reading Walzer's work, and especially his lectures on *Interpretation and Social Criticism*, I fear that he is a bit *too* eager to narrow down the scope of legitimate social criticism:

If the effect of detachment is literally the "drowning out" of the values that arise from the critic's own life in his own time and place, then the way may be opened for an enterprise far more radical than social criticism as I have described it—an enterprise more like conversion and conquest: the total replacement of the society from which the critic has detached himself with some (imagined or actual) other. Replacement obviously depends upon criticism of what is to be replaced. I shall not attempt a definitional exclusion: this is social criticism. It is most often,

however, a morally unattractive form of social criticism and not one whose “objectivity” we should admire. [. . .] In a sense, Marxists are not properly called critics of bourgeois society, for the point of their politics is not to criticize but to overthrow the bourgeoisie. They are critics of the workers instead, insofar as the workers are ideological prisoners and so fail to fulfill their historical role of the agents of overthrow. Marxists explain the failure by invoking the theory of false consciousness, which we might think of as their gesture toward common values. The theory acknowledges the commonality but treats it as a kind of collective mistake—and so misses a critical opportunity to describe socialism in socially validated and comprehensible terms. The only alternative is not to describe it at all. To discover or invent a set of socialist values does not seem to have been a practical possibility. Why should the workers stake their lives for *that*?

(Walzer 1987: 52, 55)

Walzer’s critique of Marxism’s historical materialism and theory of proletarian primacy is, of course, well taken. But as I said earlier, Horkheimer himself thought that Critical Theory could eventually do away with Marxism, so it’s unclear whether Walzer’s objections fully apply to the Frankfurt School. However, there are three, even deeper problems.

First of all, and quite aside from the fact that the first part of the statement is somewhat self-contradictory (it isn’t criticism, but it is), the whole passage seems less subtle than Horkheimer’s own suggestion. The challenge of how to critically push forward liberalism by suggesting new forms of social life, while all the time sticking to liberalism’s core values is the deepest challenge of contemporary political philosophy. It can’t be equated with finding “socially validated and comprehensible ways” of re-describing *non-liberal* utopias. The challenge, rather, is how far the description of *intra-liberal* alternatives can be stretched. Walzer truncates such intra-liberal potentialities by demanding “social validity and comprehensibility.”

The second problem is that, as our discussion of the genesis of conscious spontaneity demonstrates, Walzer’s claim that “The only alternative is not to describe [socialism] at all” is simply wrong. You may not be able to provide a socially valid and comprehensible re-description of the core liberal ideals, but that doesn’t mean you can’t describe it on the basis of your own enacted knowledge acquired through theory-mediated, reflexively partisan interaction with your fellow sufferers or with your oppressors. It’s true that you may then have more trouble persuading a large number of people, or publishing your reflections with a widely distributed commercial publisher. In short, the pragmatic means available to you for spreading your criticism may be curtailed by the prevailing society’s self-organized and self-sustaining ideological mechanisms. But that is not the same thing as not being able to describe your critical alternative at all.

The third problem is closely connected with the second. Walzer is confusing the act of *proposing or promoting* a critical alternative with the very different act of *deploying any and all means necessary to the actual and immediate realization* of that alternative. Simply jumping from Horkheimer's tedious attempts at philosophical discernment to a blunt portrayal of Machiavelli, Stalin, or the Crusades, as if the latter were the only possible implication of the former, is simply abusive. As I emphasized, conscious spontaneity does not demand immediate realization at any cost—at least not in today's "reflexive atmosphere" where pluralist politics has become a centerpiece. Revolutionary violence cannot be excluded, but neither can it be made out as the inevitable consequence of radical criticism.

In short, Walzer's suggestions for narrowing down the domain of legitimate critical theories and of types of empirically admissible factual potentialities are overblown. We should stick with Horkheimer's own suggestions, which are more rigorous. In fact, if we choose Horkheimer's complex dynamics of interaction between consciously spontaneous individuals over Walzer's wholesale argument for communitarian epistemic limitations, we will be in a much better position to make the most of the confrontation between Hayek and Horkheimer in our search for a Critical Theory—and, later, a Critical Political Economy—for our modern liberal times. This is the enterprise we will embark on in Chapters 6 and 7, and then in Parts III and IV.

The unavoidable necessity of critical rationality

Before doing so, however, we still need to clear away a fundamental objection that could come from the behavioral-empiricist front that is so deeply entrenched in mainstream economics these days. We have already encountered it earlier, but it is so tenacious it needs to be attacked on various fronts. Critical rationality and the exercise of reflexive capacities, so the argument goes, are not necessary. Most people "are not like that," and in order to make our agents—in the words of Peyton Young quoted earlier—"recognizably human," we should rather model them as simple machines using limited routines within a framework of bounded rationality.

A form of critical realism

In order to counter this objection, I need to emphasize that my position harbors clear connections to what has been labeled "critical realism" (see Lawson 1997, 2003).

It is a realist position because at no point do I question the autonomy of economic reality *vis-à-vis* any particular theoretical representation of it. As we saw, critically rational economic agents possess critical economic theories, i.e., "critically descriptive" theories of the economic reality in which they live and reflect. However, this doesn't imply that the actual, ongoing

complex process of economic reality is dependent on these critical theories and their distribution within the population. It is indeed true that reality partly depends on representations via the representation-based actions of the agents. In fact, this is one of the features that make the economy into a complex adaptive system. But that dependence does not contradict realism.

Mine is, moreover, a *critically* realist position in a twofold sense. First, I posit the drive for cognitive empowerment at the heart of the agents' rational actions, to the extent that the economy under scrutiny is a liberating economy. Second, I postulate these rational agents to be endowed with critical economic theories, i.e., theories which at least in principle can use "transfactual" categories, or theories which make room for factually invisible potentialities, untriggered dispositions, empirically undetectable tendencies, and so on.

There is undeniably a normative side to my position. This cannot be otherwise since I want to discover whether economics can be an emancipatory force for agents' empowerment within a complex economic reality. In the perspective I adopt here, a liberating economy is not primarily an economy with "free" markets, "free" capital investors, or "free" central planners. Rather, it is an economy in which all agents are able to exercise their critical, reflexive capacities to the fullest. This means, most importantly, that all economic agents, while of course constantly engaging with the actually existing economic reality (which is a never-halting, real-time process), should possess the time and resources needed for them *to reflect on the kind of economy they would like to live in and the kind of individuals they would need to be in order for that desired economy to work well*. Therefore, in a liberating economy, the kinds of potentialities, dispositions, and tendencies contained in the agents' critical theories are linked to this reflection on better ways of organizing the economy and better ways of being human.

So as a first approximation I would label my brand of realism "emancipatory-critical." It does not collapse the real on the actual because the emancipatory aspirations of most, or even all, agents may not be fully actualized in a given economy. So one of the main questions is what features of the current economy can explain the apparent non-actualization of the agents' emancipatory-critical capacities. Is the way the economy operates keeping people from exercising their critical capacities? The economist should try to answer this question as part of her investigation into economic reality. This is because *the absence of an exercise of our capacities for critical reflection is part and parcel of that reality*.

"Negativity" is crucial in critical realism. The fact that real aspects of the economy—in this case, emancipatory aspirations—are not visible first-hand is in fact part of economic reality and has to be accounted for. Dialectically speaking (but in a sense different from that of "dialectical materialism"), even an alienating economy in which some or most people's expressions of freedom appear to be stifled ultimately relies on that freedom: even freedom-negating actions and interactions themselves require the

exercise of freedom, at least in intention if not in full actualization. This is not by itself a normative claim. It is positive in the sense that it describes the ontological structure of human agency. Any analysis of human action *necessarily postulates* (usually implicitly) that the notion of freedom making sense to the very people in whom it is stifled and who, therefore, aspire to it being actualized. What is normative is the claim—which I also make under the influence of Horkheimer—that economic arrangements ought to make possible the realization of these aspirations to freedom.

But what do I mean when I say that people “aspire to” their freedom being actualized? Positivists, empiricists, and behaviorists will categorically deny that this is the ontological structure of human agency. All that can be observed is behavior, they will claim. They may agree that human behavior is, broadly speaking, intentional. (We saw that, in a general sense, even an automaton-individual is intentional.) But they will refuse to add to the observed *result* of intentions a postulated *causal origin or structure* of intentions and to claim that this origin or structure is also factual. They view instrumental rationality—or what Horkheimer called “subjective reason”—predominantly as an “as if” tool for the axiomatic *deduction* of behavior, but they do not claim to be offering a real explanation of what actually occurs in the agents’ bodies and minds.

Some positivists are, of course, prepared to go beyond observable behavior and into agents’ explicitly declared intentions such as, for example, in questionnaire surveys. For example, in his approach to cognitive and axiological rationality, Raymond Boudon (1995) seeks to broaden the scope of rational choice theory beyond behaviorism and to take seriously some of the agents’ self-declared—though not directly behaviorally observable—intentions. So does the notion of expressive rationality (Hargreaves-Heap *et al.* 1992), which seeks to convey within rational choice theory the idea that agents undertake certain actions so as to make sense of their selfhood, or to express the deeper aspects of who they are to themselves and to others.

These concepts are indeed very useful in order to break out of the strait-jacket of narrowly construed instrumental rationality. (In fact, we will encounter “expressive” rationality in a different guise later on.) But none of them appears to be going for the very core of what *human* intentionality is about. This core is the *necessary exercise of freedom* (*whether actualized or only potential*) even within the most constrained and coerced situations. On the flip side, none of these extensions beyond instrumental rationality appears to be making any room for important ideas such as self-deception, unconscious motivation, or alienated consciousness as unobservable but real aspects of agency. This is where the *transcendental* aspect of critical realism comes in. “Necessary” here means “that without the presupposition of which no utterance about human agency has any meaning.” When I say that freedom is necessary I locate myself at the level of *existentially and/or logically necessary presuppositions*, not of behaviorally observable motivations

(such as “revealed preference”) or even of verbally expressible causes of those motivations (processed information, opinions, values, and so on).

Why critical reflexivity is unconditionally necessary

To be in line with Horkheimer’s idea of an empowering use of knowledge, we now have to establish the absolute (or “transcendental”) necessity of the *actualization* of freedom in the form of critical reflexivity. This is an important but difficult task. The basic idea is to demonstrate that an economy composed of individuals who do not actualize their critical reflexivity is not a society of fully realized humans—even if such an economy could be shown to exist empirically. In other words, the very meaning of the word “human” implies the existence of critical reflexivity, and the meaning of “fully realized” humans implies the actualization of critical reflexivity. The fact that you might empirically observe agents who are not fully realized humans does not affect the argument; it certainly isn’t sufficient to be able to say that such limited and stifled agents are “recognizably human.”

One essential step in the direction of a proof consists in pitting the economic theorist against “her” agents. One thing no theorist can ever claim is that “her” economic agents—the agents in her models and theories—have never had any capacity for critical reflection. Claiming this immediately contradicts the theorist’s own position in society, a position in which critical reflexivity is very much actualized and exercised. Therefore, since the theorist can be empirically observed exercising her critical reflexivity (if not, she’d be out of a job), that same reflexivity is of necessity present in all agents. If it is not actualized in a particular model or theory, the theorist has to suggest mechanisms (either exogenous or endogenous to the model) that explain why it is not. Or, alternatively, she has to argue why in that particular case she is content with modeling non-reflexive agents interacting. But that will always lead her to describe the mechanisms in the economy that create a “demand” for models or theories devoid of critically reflexive agents. All of these added pieces—additional explanatory mechanisms—are necessary if the theorist under scrutiny is to claim she is doing social science, as opposed to mere ideology.

None of this, however, in any way challenges the *transcendentally valid fact* that being endowed with critical reflexivity is a constitutive part of being fully human. What is an essential part of the theorist’s activity, i.e., the capacity for free critical reflection, cannot in the course of that activity be denied to the objects of that activity, i.e., the agents in the models (Parthenay and Thomas-Fogiel 2005). Why should the theorist claim a monopoly on the exercise of critical reflexivity? Is her specific type of “rationality” *constitutively* different from the “rationality” of the agents she is theorizing? This cannot be claimed consistently, unless the theorist is also willing to claim that she is part of a caste genetically endowed with special capacities and abilities that will therefore never, under any social and

economic circumstances, become available to any other castes . . . Short of condoning an intellectual caste system, the economist cannot avoid the conclusion that the actualization of critical reflexivity in all economic agents is a transcendental necessity because it cannot be consistently denied.

Economics and the central role of critical rationality

Once the transcendental necessity of the actualization of critical reflexivity is ascertained, how can we derive the normative claim that the maximal exercise of their reflexive capacities *ought to be* what, in a liberating economy, agents aspire to? One of the strengths of critical realism is that it short-circuits the Humean maxim that an “is” can never imply an “ought” (see, for example, Edgley 1976; Bhaskar 1997: 21–62). Necessary, transcendental truths imply a *reality-based normativity* which can be defined as follows. Suppose the reality of x is constitutive of the reality of Y in the sense that without x being real (though not necessarily actual) Y would not be real. Then the exercise of x should be actualized if Y is “to be fully Y .”

This statement presupposes what might be called an *ontology of fullness or of authenticity*. This means there are various degrees of “being Y ” from being Y falsely or fictitiously to being Y authentically. You can just seem to be Y or you can really be Y . To put it a bit differently, *authentic being* requires that all transcendently necessary features—which, by their necessity, are real—be actual and that they eventually become observable through their effective exercise within economic life. And the transcendently necessary dynamics of being is to evolve from inauthenticity to authenticity, which is what I have just called reality-based normativity. It is a constitutive, inner “drive” from reality to actuality to empiricity. The fact that this drive is frequently stifled doesn’t make it go away: it is *trans-factual*, in the sense that its being doesn’t depend on its actualization.

Thus, a liberating economy is an economy peopled by authentic economic agents, i.e., agents whose capacities for critical reflexivity are actualized to the fullest, and who therefore undertake actions which provide observable evidence of that full actualization. I call them critical economic agents to emphasize that what makes them authentic *is* their exercise of critical rationality. An economy in which agents appear not to be critical, or not to act on their critical judgments, isn’t sufficient to provide empirical evidence that agents are *constitutively* non-critical or that, as we sometimes say, “people are not like that.” *Just because you may be recognizably alienated doesn’t make you “recognizably human.”* Simply, the economy in which you live and act is not a liberating economy, and one of the economist’s tasks is to explain why that economy is not liberating. What economic mechanisms have caused the stifling of individuals’ critical reflexivity? The actualization of critical reflexivity in all economic agents is a transcendental necessity and should, therefore, become one of the main goals of *a socially transformative practice of economics and social science*.

Of course, there is a central presupposition in all this. It is that, provided everyone's critical reflexivity is actualized to the fullest (which may require many fundamental changes in the very way the economy operates), economic interactions can be left to themselves except for the inevitable coordination problems that beset any collection of interacting individuals, regardless of the content of their consciousness and its mode of actualization. This is what I meant earlier when I said that in this book I was searching for a "Horkheimerian Invisible Hand." *Economics should not essentially be about trying to predict the results of the interactions between "rational" agents. Economics should be about (a) analyzing the structural conditions which, in an economy, stifle or promote the full development and exercise of agents' critical reflexivity; and (b) analyzing the coordination problems that beset the interactions of fully critically reflexive agents.* As long as economics studies the interactions of idiotic automata-agents and calls these "recognizably human," it studies an incoherent, contradiction-riddled, and ultimately disempowering economy. This is not what our innate drive to exercise our critical rationality deserves.

6 Bottom-up Critical Theory

What does economics describe?

Toward a bottom-up Critical Theory

The key issue now is whether there can be any overlap between the Hayekian notion of spontaneous consciousness and the Horkheimerian notion of spontaneous consciousness. I believe there is such an overlap. In fact, unless we give in to the ideological self-limitations imposed by each of these authors' approaches, there is no reason why we couldn't acknowledge *both* aspects: on the one hand, no single mind can ever embrace and comprehend the whole process and result of our detailed, ongoing social interactions; on the other hand, one of the forces driving interactions between rational individuals is their desire to envision and create a better society.

In this chapter, I want to move beyond the weaknesses of each approach in order to enrich their synthesis. Viewed from a Hayekian angle, the Horkheimerian approach is unable to tell us how social formations can *emerge from* the interaction of consciously spontaneous individuals. Viewed from a Horkheimerian perspective, the Hayekian approach is unable to tell us why the prevailing modes of spontaneous consciousness and the institutional rules with which they have co-evolved are optimal from a critical point of view, and why critically minded liberals should not criticize today's capitalist market economies. By engineering a crossover between these two sets of weaknesses we could, I believe, create a much more solid approach.

The idea of pulling together these two strands of thought into a form of "bottom-up" Critical Theory may seem like an oxymoron. Wasn't Hayek one of the most vocal opponents of the Marxist undercurrents which motivated Horkheimer's work? That's true, but it doesn't exhaust the potential of his philosophy. Nor is the potential of Horkheimer's philosophy exhausted by his Marxism. As I hope to show, it's still possible to take Hayek's *basic scheme* of knowledge-using individuals who interact purposively and generate non-intended aggregate states that "spontaneously" order society, and to mix it with Horkheimer's *basic scheme* of critically minded individuals who, through collective action informed by critical social theories, try to "consciously" shape and control the systemic constraints that make their lives into what they are.

Notice carefully that I am speaking here of “basic schemes.” I do, of course, realize that overcoming the oxymoron must involve both sides relinquishing *some* aspects that are not fully organic to the respective author’s approach. As I will now explain, Hayek’s and Horkheimer’s critical theories (with lower-case “c” and “t”) are incompatible, but their Critical Theories (with upper-case “C” and “T”) aren’t. This is what keeps my synthesis of them from merely being an oxymoron.

Critical Theory and critical theories: a two-tier approach

A key aspect of my proposed synthesis of Hayek and Horkheimer is that I don’t claim that either of these authors really has—contrary, perhaps, to what he believes—offered us only one critical theory of “liberal” society. Clearly, each of them seeks to offer *a specific critical theory*; their critical standpoints with respect to their (empirically identical but differently experienced) historical situation are extremely specific. One of the reasons why my proposal may seem oxymoronic is that there is no way to “unite” the approaches of a Marxist and of a right-wing libertarian.

That’s true, of course, and it explains why I just spoke of *basic schemes*. In fact, what makes both Hayek and Horkheimer major thinkers is that they did *not* each publicize *merely* one specific approach to society, to be thrown into the political arena along with other, similarly specific approaches. They did that *also*, of course, but they did *more*. This added dimension, I surmise, is due to both authors’ deep understanding of liberal philosophy and their adherence to deep knowledge of the twin tradition of the Scottish *and* continental Enlightenments. Horkheimer *was indeed* a “late Marxist” with a belief in the proletariat’s revolutionary mission (Jameson 1990). Hayek *was indeed* a right-wing libertarian with a belief in minimally regulated market competition (Hoover 2003). However, both of them also succeeded in acquiring such a deep understanding of the social process in modern liberal societies that the *basic scheme* of their approaches can, to a significant extent, be divorced from their own *specific* political and ideological options.

This may sound paradoxical at first. Actually, it illustrates a very important point: the whole endeavor of critical theorizing actually amounts to *working with a two-tier approach*. There are a myriad critical theories (with lower-case letters) that circulate among agents as part of their “knowledge about the economy,” and there is a Critical Theory (with capital letters) which circulates among agents as part of their conception on how all their critical theories should coexist in the economy. Neither critical theories nor Critical Theory can be dispensed with in a genuinely liberating economy. Each critical theory is a self-consistent proposal for understanding how the economy works and how it could be improved. The overarching Critical Theory is a higher-level proposal that embodies the current society’s deepest values and its norms as to what can and what cannot be used as a critical argument. To clarify this crucial distinction between critical theories and

Critical Theory, let me refer to Geuss's discussion of the Frankfurt School's heritage. Geuss suggests the following characterization of a critical theory (with small "c" and "t"):

A typical critical theory will be composed of three main constituent parts:

- (A) A part which shows that a transition from the present state of society (the "initial state" of the process of emancipation) to some proposed final state is "*objectively*" or "theoretically" possible, i.e. which shows:
 - 1) that the proposed final state is inherently possible;
 - 2) that it is possible to transform the present state into the proposed final state.

- (B) A part which shows that the transition from the present state to the proposed final state is "*practically necessary*," i.e. that
 - 1) the present state is one of reflexively unacceptable frustration, bondage, and illusion;
 - 2) the proposed final state will be one which will lack the illusions and unnecessary coercion and frustration of the present state.

- (C) A part which asserts that the transition from the present state to the proposed final state can come about only if the agents adopt the critical theory as their "self-consciousness" and act on it.

(Geuss 1981: 76)

These three conditions are essentially a restatement of the three phases of normative, theoretical, and practical judgment I set out in Chapters 2 and 5. They recapitulate what I earlier encountered as "conscious spontaneity." In their interactions, agents will be consciously spontaneous—rather than merely spontaneously conscious—if their reasons for acting are guided by a critical theory comprising (A), (B), and (C). Thus a critical theory as defined by Geuss is an *individual feature*, despite the purported universality proclaimed in (C). At the individual level I may be a Hayekian conservative or a "Frankfurt" progressive, and in both cases adhere to (A), (B), and (C). As we will see below, I may also be an adherent to mainstream complexity theory and have my own version of (A), (B), and (C). Our discussion of Chapters 2 and 3 can help us in determining whether the mainstream body of economic theory can, in fact, be used as a critical theory in a consistent, humanly feasible way. But in principle, nothing can prevent me as an individual from using mainstream economics to make sense of, and criticize, the

current economy. I can be a consciously spontaneous agent who has been taught mainstream economics.

Recall, however, that each consciously spontaneous agent is also characterized by a “critical acceptance” of the current economy. This means that while she may condemn the existing economic reality on the basis of her lived experiences in it, she doesn’t necessarily aim to immediately and fully realize her critical theory here and now. Therefore, in a liberating economy, there is always a level of ongoing interaction which concretely escapes the grasp of any of the particular critical theories. This is so even though, by Geuss’s point (B), dissatisfaction with this level of interaction is in fact the very object of *all* the critical theories. This level of ongoing interactions which transcends all dissatisfactions about itself could, in Hegelian terms, be called the *concrete totality*. By contrast, your critical theory is a *partial totality* which you, as an individual, carry around in your head and use it in your everyday actions. Somewhat misleading in his use of the singular, Horkheimer says that “Those who have the theory in their heads have it there in its totality and act according to that totality” (Horkheimer 1937a: 240).

So the partial totalities are the critical theories; they are the different ways in which we critically reflect on economic reality and its defects as we experience them. The concrete totality is not a theory; it is an emergent property and *cannot* be fully theorized by any of the particular partial totalities in circulation. It requires a specific level of normative analysis which will be the realm of what I have called Critical Theory. This has to tell us how critical theories should emerge in individuals and how they should be made to interact in an empowering, emancipatory economy. *Critical Theory is a device to criticize any circulating critical theory and “screen” it in order to check whether its way of being critical is legitimate.* At that level, both Hayek and Horkheimer have things to contribute which don’t boil down to their specific critical theories, that is, to their specific reasons for being dissatisfied with the existing capitalist market economy. [As I will argue below, what they have to contribute is significantly distinct from what Habermas, the chief exponent of such an overarching Critical Theory (McCarthy 1978; Geuss 1981), has offered.]

“Harnessing complexity” through conscious spontaneity

I will construct my synthesis in two steps. First, I will ask how Hayek’s approach has to be revised in the light of Horkheimer’s, and then how Horkheimer’s approach has to be revised in the light of Hayek’s.

Hayekian “spontaneous consciousness” has to be made more deeply aware of the virtualities or possibilities of the experienced world. Both authors actually share a significant portion of Hayek’s “true individualism,” as is evidenced for instance by Horkheimer’s lament about “[t]he takeover of what belongs to the individual into the state’s keeping” (Horkheimer 1937a:

248), or his already quoted pro-liberal position: “Under liberalism the citizen could *within limits* develop his own potentialities; his destiny was *within limits* determined by his own activity. That all should have this possibility was what was meant by the demand for freedom and justice” (Horkheimer 1968: vii, italics added).

One of the enduring problems of liberal philosophy is the question of how one judges those “limits,” and to what extent they require a critical reassessment. On the basis of his own personal critical theory, Hayek has become known as an unflinching defender of inequality in outcomes. To him, individual suffering in impersonal competitive contexts is unavoidable. The fact that it hits different agents differently is the price to pay for a process that redistributes positions instead of hardening them into stable statuses:

[T]rue individualism is not egalitarian in the modern sense of the word. It can see no reason for trying to make people equal as distinct from treating them equally. While individualism is profoundly opposed to all prescriptive privilege, to all protection, by law or force, of any rights not based on rules equally applicable to all persons, it [. . .] is equally opposed to any rigid limitation of the position individuals may achieve, whether this power is used to perpetuate inequality or to create equality. Its main principle is that no man or group of men should have the power to decide what another man’s status ought to be [. . .]. That it is possible to foretell who will be the lucky ones or whom disaster will strike, that rewards and penalties are not shared out according to somebody’s views about the merits or demerits of different people, but depend on their capacity and their luck, is as important as that in framing legal rules we should not be able to predict which particular person will gain and which will lose by their application.

(Hayek 1945a: 30, 1944: 105).

In that sense, Hayek’s sophisticated evolutionism, which has been amply documented (see, for example, Hodgson 1993: 152–94), falls under Horkheimer’s critique of the effects of cultural evolution:

Civilization starts with, *but must eventually transcend and transvaluate*, man’s native mimetic impulses. Cultural progress as a whole, as well as individual education, i.e. the phylogenetic and ontogenetic process of civilization, consists largely in converting mimetic into rational attitudes. [. . .] Conscious adaptation and eventually domination replace the various forms of mimesis. [. . .] To adapt oneself means *to make oneself like the world of objects* for the sake of self-preservation. This *deliberate* [. . .] *making of oneself like the environment* is a universal principle of civilization.

(Horkheimer 1946: 115, italics added)

This makes Hayekian cultural evolution less of a marvel, at least when one adopts a critical attitude. But if this were the end of it, Hayek's setup would simply be sophisticated, but nevertheless non-"transcended" and non-"transvaluated," social Darwinism. There would be no way to connect Vienna and Frankfurt. But in fact there is. I take my cue from a sentence dropped almost casually by Hayek when he discusses the content of "true" individualism and of Adam Smith's doctrine of "self-love":

There can be no doubt, of course, that in the language of the great writers of the eighteenth century it was man's "self-love," or even his "selfish interests," which they represented as the "universal mover," and that by these terms they were referring primarily to a moral attitude, which they thought to be widely prevalent. These terms, however, *did not mean egotism in the narrow sense of concern with only the immediate needs of one's proper person.* The "self," for which alone people were supposed to care, did as a matter of course include their family and friends; *and it would have made no difference to the argument if it had included anything for which people in fact did care.*

(Hayek 1945a: 13, italics added)

Now, of course, this last italicized sentence might be construed in different ways. Suppose we accept—as Hayek seems to accept—that any object *X* an individual is *able* to "care for" must be an *X* such that the individual can fully comprehend *X* in its actual ongoing process. Then we will indeed have to admit that "[even if] he takes a warm interest in the welfare of every human being he knows, the ends about which he can be concerned will always be only an infinitesimal fraction of the needs of all men" (Hayek 1944: 62).

Horkheimer's distinctive contribution, however, is precisely to dispute this. Indeed, the whole emphasis of the Frankfurt School on *theory* implies that possessing a theoretical view on the good or better economy [in the sense of (A), (B), and (C) above] is distinctly *not* the same as possessing immediate and unified knowledge of the ongoing economic process. The former is possible while the latter is not, and they are not mutually incompatible. Having a critical theory of his economic situation makes the agent able to act and react differently within the ever elusive ongoing process. It is through this "moral capacity" to include in their "self" "anything for which they do care" that individuals are able to transcend their "spontaneous" adaptive necessities and make them "conscious." This means that any critical theory of the economy—including Hayek's own!—can indeed be contained within one brain. It is not a full-scale positive description of all of ongoing reality but, like any theory, it is a *sophisticated picture* of how economic life is and should be functioning.

But it is a *critical* theory, so it is emphatically *not* an expression "of what seems appropriate to somebody else who is supposed to possess a fuller comprehension of the significance of [the individual's actions] for society"

(Hayek 1945a: 14). This is so for at least two reasons. First, the critical theory is not somebody else's, but *the agent's own*, since he has acquired it within the ongoing process itself. We may have to reflect on the conditions that will ensure that the agent's theory is *really* his own and not an authoritatively imposed theory. This may mean we need to think about how exactly critical theories should be taught in a liberating economy, as I will do in Part IV. But it certainly doesn't mean theory should be withheld from agents. Second, a critical theory is in fact a *type of pragmatic knowledge*. As a totality distributed in the agent's brain, it guides the individual's action. It isn't merely a tool to judge the action after the fact. The *reason* why the individual acquired a critical theory of society is precisely that she wants it as a tool for action.

Thus, Hayek's attempt (later mimicked by the proponents of "bounded rationality") to separate theoretical knowledge from everyday knowledge on the ground of limited cognitive capacities is misguided. More than that, it is really unnecessary. Hayek himself, and any socially or politically committed thinker, is a living demonstration that, in actual fact, people *do act* out of theoretical convictions without being impaired by their inability to embrace the whole of the *ongoing* social process within which they act.

Now, how does an individual come to acquire a critical theory within the ongoing economic process? As already indicated in Chapter 5, the category of *struggle* plays a central role here. Horkheimer shows that liberalism itself, as a set of critical theories that have claimed attention throughout modern Western history, was both a product and a factor of social struggle. In a half-playful discussion of the "liberal mind," he suggests this:

Mind is liberal. It tolerates no external coercion, no revamping of its results to suit the will of one or other power. But on the other hand it is not cut loose from the life of society; it does not hang suspended over it. In so far as mind seeks autonomy or man's control over his own life no less than over nature, it is able to recognize this same tendency as a force operative in history. Considered in isolation, the recognition of such a tendency seems natural; but *just as mind is unable to recognize it without first having been stimulated and become concerned, neither can it make such recognition a generally accepted fact without a struggle*. To that extent, mind is not liberal.

(Horkheimer 1937a: 223, italics added)

This necessity for a liberal to occasionally be illiberal is universally recognized, and it remains one of the most enduring puzzles of political philosophy. Horkheimer's subtlety is to move us out of the domain of ideas and idealism into the realm of hard historical realities. Liberal society must be struggled for. Hayek's own life and political practice (Dixon 1998: 18–32), as well as that of numerous other liberals, testifies to that fact. It is the progressive result of a critical mass of people interactively seeking to

improve the social world, to overcome their sufferings and frustrations. And indeed, Hayek's *Road to Serfdom* is a "fighting pamphlet." It is an intellectual tool intended to fuel social struggle for values *he* believes *we* can't live without. As such, it contradicts Hayek's own claim that action-guiding knowledge cannot claim to embrace all of social and economic reality. It can—in the Greek sense of "*theoria*" to which Hayek's own work is a testimony, though of course not in the sense of being able to reproduce instantly on a map or on a screen the whole network of ongoing interactions.

So critical theoretical knowledge is inherently bound up with struggle. This also means that *critical theories are acquired by individuals as empowering tools for the emancipatory action they seek to construct, starting from their own concrete situations*. Economic life is not mere evolutionary immanence. Rather, it is the emergent result of individuals' heterogeneous and contradictory attempts to "harness" the social complexity they are immersed in and to bend the consequences of complex interaction (Axelrod and Cohen 2000). However, the shape of the bend is given not merely by unreflexive adaptation to a competitive market process, but by the potentialities and as yet untapped possibilities that each individual's critical theory makes him care about. Each critical theory—including Hayek's and Horkheimer's—is, as it were, a structured proposal for a better society, and these theories are formed and modified over the course of interactions as individuals experience their own and others' social suffering and frustrations. And the more liberating the economy, the less unconsciously, reactively, and adaptively they will experience them.

This closes the first half of my effort to suggest the shape of a bottom-up Critical Theory. We have been concerned with making Hayek more Horkheimerian by using his own internal resources. Let's now embark on the second leg, which consists in using Horkheimer's own insights in order to make him more Hayekian.

The economy emerges from "critical mass"

Horkheimerian "conscious spontaneity" has to be made more aware of (i) various collective-action limitations and (ii) the fact that economic phenomena are frequently emergent properties of the system. Horkheimer is certainly much too hasty in rejecting *all* Invisible-Hand notions as "superstitions." He frequently upholds naive illusions of collective control over "man's destiny." These are symptoms of what has long been wrong with socialist philosophy.

Both authors actually share a significant portion of Horkheimer's belief that social theory should promote authentic emancipation, as is evidenced by Hayek's constant ambition to study "that condition of men in which coercion of some by others is reduced as much as possible in society" (Hayek 1960: 11), or by his perception that "whatever we do, it can only be the beginning of a new, long, and arduous process in which we all hope we

shall gradually create a world very different from that which we knew during the last quarter of a century” (Hayek 1944: 245). However, while in this purported concern for collective emancipation Hayek is too inattentive to the role played by the individuals’ critical consciousness, Horkheimer is too inattentive to the role played by the pathologies of coordination and interaction and by the constraints of a decentralized social order. In what follows, I will leave aside collective-action considerations (although they loom in the background and will be addressed in Chapter 8) and I will focus mainly on the issue of systemic constraints. I am searching, remember, for a “Horkheimerian Invisible Hand.”

One of the most enduring challenges of socialist philosophy is to show exactly how the “long and arduous process” through which “we all hope to create a better world” can unfold. On the basis of his own personal Marxist critical theory, Horkheimer believes that if *each* individual becomes aware of the chains that bind *all* individuals, a collective movement will emerge which has none of the—to him—unsavory features of emergent properties in a complex system:

Where [. . .] man confronts *circumstances which do depend on him yet eyes them as alien and unalterable* his thought is bound to be feeble and abstract. Where today there is nothing but dependence, there could instead be constructive resolve on so wide a scale that even the character of intellectual behavior would be altered. Calculative thought, mere “head” thinking [. . .], corresponds to a type of human being who is still in a stage of relative impotence, who is still passive with regard to vital issues, despite all his industrious traits. As a result the functions of management and regulation [. . .] take on the character of adaptation and artifice far more than of rationality. *Since the development of a higher spontaneity hinges on the creation of a rational community, it is impossible for the individual simply to decree it.* [. . .] [T]he prerequisite for this goal is that the individual abandon the mere recording and perception of facts, that is, mere calculation; that he learn to look behind the facts; [. . .] that he formulate conceptions that are not simple classifications of the given; [. . .] in short, *that he learn to think dialectically.*

(Horkheimer 1937b: 181, italics added)

This passage is a good illustration of Horkheimer’s allergy to emergent phenomena. It also highlights an important puzzle. In order to form a community of consciously spontaneous agents, individuals need to “learn” various attitudinal qualities—but can’t this individual “learning” come about only from already being in a community of consciously spontaneous agents? If, as is undoubtedly true, “the development of a higher spontaneity” cannot be “decreed,” how can it come about? And what does Horkheimer mean by “dialectical” thinking?

Hayek's own personal conservative critical theory can give no answer. Symmetrically to Horkheimer's allergy to emergent phenomena, Hayek displays an allergy to "higher" theoretical knowledge being used by agents in their everyday actions. However, what I earlier called Hayek's *basic scheme* can indeed put us on the right track. Why not extend to the learning and circulation of theories his interactionist perspective and his notion that economic variables transmit information to individuals? Let me rehearse a point I have already quoted in part earlier:

All economic activity is [. . .] planning; and in any society in which many people collaborate, this planning, whoever does it, will in some measure have to be based on *knowledge which, in the first instance, is not given to the planner but to somebody else, which somehow will have to be conveyed to the planner*. The various ways in which the knowledge on which people base their plans is communicated to them is the crucial problem for any theory explaining the economic process [. . .]. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders. We must solve it by some form of decentralization. But this answers only part of our problem [because] the "man on the spot" cannot decide solely on the basis of his limited but intimate knowledge of the facts of his immediate surroundings. There still remains the problem of *communicating to him such further information as he needs to fit his decisions into the whole pattern of changes of the larger economic system*. How much knowledge does he need to do so successfully? [. . .] [T]his problem can be solved, and in fact is being solved, by the price system. [. . .] Fundamentally, *in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people* [. . .].

(Hayek 1945b: 78–85 *passim*, italics added)

Recall that we are now no longer dealing with "spontaneously conscious" economic agents as implicit in this passage. We are dealing with "consciously spontaneous" economic agents who are trying to harness the complexity of the system by using certain critical theories as guides to action. Thus, "knowledge" here includes such theories. The issue then becomes whether any equivalent of a "price system" could exist which might fulfill the task of "conveying" to each agent all "further theoretical knowledge" (in the form of elements of critical theories) allowing him to "successfully fit" her critically rational actions into the "larger system."

Obviously, as we saw earlier, if such theoretical knowledge is *factual* at all, it will be so in a very different sense from the way in which market prices are factual. Still, critical theories don't appear exogenously as commandments engraved on stone tablets. The set of available critical theories

can be treated as an emergent property of the interactions of consciously spontaneous individuals in a complex adaptive economic system. And it is the chief task of Critical Theory to understand how such an emergence does in fact, and might under better circumstances, occur.

This allows us to better understand what Horkheimer means by “dialectical thinking” on the part of the individuals. To him, the best way for an individual to acquire a critical theory is to “look behind the facts” that make up her society’s common sense and to view these facts as a falsifying fetish, or a smoke veil. This obscuring power of “the facts” can be removed by shifting to a higher-order rationality in which what parades as facts is understood in its true ideological function, which is to make the factual functioning of the economy look “natural” and “eternal.” In other words, agents have to stop being influenced by “traditional” science and have to look for resources within critical science.

But since we have now introduced a Hayekian, *emergentist* corrective into Horkheimer’s thought, we see that these operations whereby individuals translate official facts into hidden interests—i.e., replace traditional science by critical science—can only occur within an interactive process. Clearly, this does not at all guarantee that “higher-order rationality” will be easily agreed on by all parties to the interaction.

Thus, society as a community of consciously spontaneous individuals can indeed not be “decreed,” and it can in fact only *emerge as the unintended consequence of a complex, decentralized, interactive learning process* (see, for example, Chamley 2004). This, as we can gather from Hayek’s approach, necessarily requires some form or other of *competitive process for the diffusion of critical ideas* (see, for example, Coase 1974; Colander 1989). This is because, as most scholars readily know from experience, even in the interactive search for the “right” critical ideas there are inevitable elements of competition and rivalry, differential evaluation, arbitrage between theories, etc. There is no reason why one shouldn’t be able to view theory circulation and diffusion as a competitive process.

What would form and reform constantly is a kind of “critical mass.” By this, I mean a mass of critical individuals whose one-by-one trajectories might be difficult to keep track of, but whose overall statistical properties might show the same regularities as other complex phenomena, provided one can in some sense quantify theoretical knowledge and work with statistical distributions of theories. (Elements of a formal model are offered in Chapters 8 and 9.)

Suppose that the learning process becomes centralized, as when a single “doctrine of economics” becomes the sole object of teaching at schools and universities. In that case, the variety of conscious spontaneities and of the associated critical theories is stifled and Hayek’s criticism of centralized planning applies. This is what happens when, as Horkheimer (1937a) suggests, *one single* critical theory—in his case Marxist materialism, in our case the mainstream model of a “free” economy—becomes the focus of all

reflexive and utopian thinking, and hence becomes dogma. Critical Theory then goes out of use because it has to trivially “coordinate” one single critical theory. All it can do is to call for a new plurality of critical theories to arise—and to reflect on the conditions required for such a plurality to emerge from an anti-pluralistic status quo.

Suppose, now, that *no* critical theory of society is taught at all. In that case, all teaching on the economy is presented merely as a collection of descriptive facts, explanatory models, or abstract thought experiments. Whatever might have been the critical intent of an economic theory is either collapsed onto descriptive factuality or made irrelevant by abstraction. This is what happens when economics gets taught as non-critical, positive theory or as abstract normative economics. (Quite strikingly, Hayek does not suggest that this should be the case, and he is much more critical of standard economics than Horkheimer is of standard Marxism.) Then, no critical theory emerges at all, and economics becomes a tool for narrow adaptation and fatalism rather than a reflexive tool for social criticism. Critical Theory then tends to disappear from collective awareness because there are no theories around to be called “critical.” All it can do is to call for a renewal of criticism *tout court*. Failing that, it will tend to merge with the mere uncritical description of the prevailing (“pluralistic, democratic, free, liberal,” etc.) functioning of the existing society.

In both these cases, what I would call *the power of emergence* so powerfully conveyed by Hayek is stifled. Rather than being a community of consciously spontaneous individuals, society becomes either a community of un-spontaneous, self-conscious individuals having fallen prey to the “illusion of control” (Ormerod 1998: 75–90), as in dogmatic communism, or a community of spontaneously conscious, merely adaptive and “competitive” individuals of the business-school type, eager to fit in with the “new knowledge economy” (see, for example, Stehr 2002, Foray 2004). Both alternatives are instances of what Ken Wilber (1996) has called a “flatland” view—a view in which criticism is no longer considered to be necessary or, if it is, comes from one single voice, usually “science.” The possibility for the human mind to use its critical faculties to open up new horizons disappears, first in the models of the economy, then in the economy itself. So what a genuinely liberating economy needs is not just criticism, but *freely emerging criticism*.

This closes the second half of my effort to suggest the shape of a bottom-up Critical Theory—the half concerned with making Horkheimer more Hayekian by using his own internal resources. We have seen that each approach has to give up some of its cherished presuppositions. But that’s the price to pay to obtain what I believe to be a sound and stimulating conception of the economy as the emergent property of a complex learning process in which critically minded individuals interact reflexively, through collective action informed by competing critical theories, each aiming to *shape and control* the systemic constraints that make their lives into what they are, and through this interaction nevertheless generate *unintended*

aggregate consequences that constrain their actions and thereby make them mutually compatible.

This, in essence, is what *bottom-up Critical Theory* is all about. As I have tried to demonstrate, there is no oxymoron involved here as long as we distinguish Hayek's and Horkheimer's critical theories—as specific “partial totalities”—from their underlying *basic schemes*. This distinction makes possible a complicated but consistent Critical Theory of the economic process—the “concrete totality”—in which these critical theories interact. The approach that will eventually capture this new brand of Critical Theory is what I will call Critical Political Economy.

End-state versus process

What kind of social dynamics can a bottom-up Critical Theory support? This will be studied more extensively in Chapters 7, 8, and 9, but at this stage I think we could already gain some preliminary insight by scrutinizing Jürgen Habermas's (1981, 1992) huge opus. His own trajectory has led him from the Frankfurt School to the theory of communicative rationality. He addresses many of the same issues which I have been discussing. Under what conditions might Habermas's approach to communicative action and democratic legitimacy *be compatible with* the brand of Critical Theory discussed here? In what way is bottom-up Critical Theory even at all *different* from Habermas's own approach? In a nutshell, I would claim that Habermas presents essentially an *equilibrium theory*, whereas in the bottom-up vein I have been after a *disequilibrium theory*. Let me explain.

Habermas's trajectory is symptomatic of the difficulties which political liberalism faces in integrating Critical Theory without reducing it to the problem of finding and refining procedural criteria of democratic legitimacy. The problem is certainly not democracy *per se*. Indeed, the extension of democratic procedures to all the spheres of collective life where it is practicable is a strong part of Horkheimer's own view, when he writes of “socialism [as] democracy realized in its true meaning” (Horkheimer 1946: vi). Rather, the problem is that democracy and its transcendental-pragmatic conditions of ideally uncoerced speech *should be shown to emerge as the ultimately unintended result of the complex interaction of asymmetrically situated, though critically minded individuals*. How can such an emergence be thought to take place? To go in the direction I outlined above, the theory of communicative action would have to shift some of its emphasis from the *conditions of possibility* to the *process of emergence*. It would have to pay more careful attention to the processual dynamics through which repeated, irregular, possibly conflictual interactions between diverse “subjective pretensions to objectivity” (i.e., individuals who *critically accept* situations of distorted communication) end up generating the “objective realm of subjectivities” in which speech is no longer distorted.

In fact, Hayek addressed a formally analogous critique to standard economists back in the 1940s:

Any approach, such as that of much of mathematical economics with its simultaneous equations, which in effect starts from the assumption that people's *knowledge* corresponds with the objective *facts* of the situation, systematically leaves out what is our main task to explain. I am far from denying that in our system equilibrium analysis has a useful function to perform. But when it comes to the point where it misleads some of our leading thinkers into believing that the situation which it describes has direct relevance to the solution of practical problems, it is high time that we remember that it does not deal with the social process at all and that it is no more than a useful preliminary to the study of the main problem.
(Hayek 1945b: 91)

Let's apply this remark, in a Horkheimerian vein, to "knowledge" that includes critical theories as guides for individual action. This creates a rather powerful challenge to Habermasian transcendental pragmatics. Moreover, since bottom-up Critical Theory emphasizes critical theories as guides for *everyday action*, it gives less importance than Habermas to speech acts and more importance to strategic action and interaction. Critical theories are non-instrumental visions of a better society, but they serve as a basis for instrumental actions. The extreme case being, in Horkheimer's own terms, social struggle. This is an additional challenge to the Habermasian paradigm, and it is a challenge that can even be addressed to some of those who have criticized Habermas for his benign neglect of game theory and strategic interaction. One of these is Joseph Heath, who writes at the end of his critical assessment:

The major advantage of studying game theory more carefully [. . .] is that it helps to distribute the burden of proof somewhat more evenly among the different conceptions of rationality [rather than overblowing the importance of discursive rationality]. To prize agents out of their instrumental orientations, Habermas claims that the mere act of speaking automatically locks them into a commitment to discursive redemption of their validity claims. Once it becomes clear that *instrumental action sometimes is just not feasible*, it seems reasonable to suppose that agents will enter into discourse just because normatively regulated interaction works better than strategic action, and practical discourse is the best way to fix the content of the normative system. Similarly, Habermas suggests that unless they enter moral discourse, they may throw up their arms and "revert" to a strategic orientation. But again, *if the strategic orientation is simply not feasible*, agents may have no option but to work out their differences discursively [. . .].

(Heath 2001: 310–11, italics added)

In terms of pure logic, Heath can't possibly be wrong. *If* acting instrumentally to modify norms is impossible, *then* there is no choice but to modify them by symmetric argumentation. If you can't fight, talk. But is this not a foregone conclusion? There are always conditions that make *further* instrumental action *impossible*. Such conditions can be embodied, for instance, in particular game rules which make strategic misrepresentation and manipulation instrumentally suboptimal. But surely, such conditions must have been *preceded* by a process of struggle? If not, how did the impossibility of further action become actual? And must the success of that process of struggle not, in turn, be seen as the outcome of a series of *instrumental interactions between consciously spontaneous agents*, i.e., individuals having acquired, and constantly reflecting on, a critical stance towards the prevailing social norms? If this is so—and bottom-up Critical Theory suggests it is—then Heath, although certainly being much less of a transcendentalist than Habermas, is still focusing too closely on an “equilibrium” approach to normative formations.

The somewhat unexpected alliance of Hayek and Horkheimer allows me to suggest the following. Instead of focusing on a dichotomy between a pragmatically transcendental model of communicative rationality (Habermas) and a model of self-limiting instrumentality in symmetric games (Heath), we should focus on a model of emergence of social norms through the interaction of individuals endowed with *critical instrumental rationality*. These are individuals who are each committed to the realization of their critical theories but who each reflect (as part of their respective critical theories) on the best instrumental strategies for the furthering of their critical interests in a society where all individuals do the same. No doubt, as Hayek himself has constantly argued, such interactions will never occur in a vacuum. Our instrumentally rational critics will co-evolve rules and norms to ensure, for instance, that mutual destruction is averted, that instrumental violence is kept at a minimum, and so on. However, there is no reason to expect that such a dynamic process would start directly in a Heathian framework where instrumental action has *already* been rendered ineffective. The latter may very well be an endpoint (stable or unstable) of the process. Bottom-up Critical Theory insists that this endpoint should not be presupposed but, rather, that it should be made an *explanandum*.

It may, at first sight, seem odd that the Horkheimerian perspective—so wary of the degeneration of “objective” into “subjective” reason—is used here to introduce a brand of *instrumental* rationality. The oddity disappears, however, when one recalls that what I have dubbed here critical rationality is a guide to individual action based on a critical theory, i.e., on a worldview acquired by the individual *in order to act in a purposeful way toward a better society*. This is, of course, not at all the kind of instrumental rationality Horkheimer and the whole Frankfurt School have in mind when they lament the colonization of the social world by subjective reason and formalized reason. Not surprisingly, therefore, it does not overlap with what

Heath, who here follows Habermas's usage, calls "instrumental rationality." Bottom-up Critical Theory stays clear of both top-down planning and the fetishization of "everyday skills." In doing so, it explores the subtle mix between what Lindblom (1990) has called, respectively, the "scientific society" model and the "self-guiding society" model. It explores, if you like, the spectrum between the Hayekian dictum of "letting go, with dignity" (Kelly 1994: 127) and a Horkheimerian demand for slightly more than mere "social hope" (Rorty 1999). Neither Hayek's nor Horkheimer's all too specific critical theories will do here. Habermas has offered an insufficiently process-oriented version of a Critical Theory. The specific Critical Theory outlined here seeks to remedy some of the shortcomings, and Critical Political Economy will embody the kind of economics that can plausibly accompany bottom-up Critical Theory.

Critical rationality forms a crucial centerpiece of that approach. We should analyze more carefully its behavioral and cognitive implications for bottom-up Critical Theory. This should help in promoting visions of economic change that are both complexity-based and existentially inspiring. Applied to economics, bottom-up Critical Theory can compensate the uncertainties linked to the global emergence of change by the exhilarations of an economy in which critical-mindedness and consciously spontaneous interaction have become a way of life. Chapters 7 and 8 will offer cognitive concepts and economic modeling tools for such a rethinking of social emancipation and cognitive empowerment in a liberating economy populated by critically rational agents.

"Critical descriptiveness": what does economics describe?

Before we move into these more precise aspects of bottom-up criticism, we need to clear up one issue that is apt to be raised by the behaviorally and positivistically oriented mainstream economists. The aim of an economic model, their argument might go, is precisely *not* to offer social criticism or to equip citizens for it, but rather to build a scientific explanation of one or several economic phenomena. Thus, Horkheimer unduly mixes positive and normative approaches, which renders positive explanation and description impossible. This, mainstream theorists might argue, is a fundamental mistake.

The "reflexive appeal" of theories

To reply to this objection, let me expand on the critically realist position I started outlining in Chapter 5. As I argued there, I take it as axiomatic—and even as transcendently established—that the faculty of critical reflection on the economy is one of the most radical expressions of human freedom. However, *how intensely this faculty can be exercised depends in part on the way the economy is organized.*

The extent to which economic agents reflect on the economic system reflects the organization of the economic system. In that sense, the production of knowledge about the economy is *an economically conditioned activity*. It takes place within the economy and its extent and content is influenced by the way in which the economy is organized and operates. An important consequence then follows. The extent to which economists allow the economy's operations—its more or less fine-grained, daily influences on individual bodies and minds—to dampen or even curtail the agents' socially reflexive awareness of those operations reflects the extent to which economists take the economy's operations to be normatively acceptable. In other words, to the extent that economists model agents as individuals who accept the social context and the overall economic structure within which their everyday activities take place, economists express their own acceptance of that context and that structure.

The way our economic system is organized depends in part on how much we, as agents in that system, are able to exercise our faculty to critically reflect on the economic system. In that sense, the production of knowledge about the economy is *an economically conditioning activity*. It determines the extent to which agents will question and criticize, or on the contrary accept and justify, their spontaneous experiences within the economy and hence the extent to which they will wish to alter or perpetuate the basic structures of the economic system in which they live.

Take any given system of economic interactions, i.e., any given pair made up of economic institutions and of the norms of rationality prevailing within these institutions. From the Horheimerian perspective adopted here, there is an indeterminate variable which is crucial for our understanding of the forthcoming dynamics of that system. It is a variable that may not be easy to observe empirically within standard statistics. I call it the *degree of reflexive acceptance which, at a given moment, supports that system*. It may take on different "values" ranging from lucid refusal (conducive to imminent revolution) all the way to lucid internalization (indicative of rock-solid stability). In between, there is the whole range of degrees of critical acceptance.

It matters greatly to our job as so-called "positive" economists whether, in the economies we are trying to analyze and describe, most agents are currently lucid rejecters of the institutions and the associated norms of rationality, or whether they are lucid internalizers, or whether they are in a mindset of "intermediary" critical acceptance, trying to play along with the existing rules and norms while attempting, to various degrees, to reinterpret or even subvert them. And it matters greatly to our job as so-called "normative" economists whether or not the economies we are analyzing and describing fully allow each and every agent to freely determine his degree of critical acceptance of the system. A liberating economy is not primarily a competitive market economy or, for that matter, any economic system in which agents merely "adapt" to each other's actions. A liberating economy is, essentially, *any economy that works in such away that agents have the time and resources (material and cognitive) available to them so as to lucidly*

reflect on, and shape, the rules and norms of their economic interactions. Thus, a genuinely liberating economy is one in which there are economists who see it as their main task to assist non-economists in exercising their fullest reflexive powers about economic matters. These economists should also, in line with the instrumental component of critical rationality, assist the agents in devising the best means to act towards whatever they have come to consider as the best kind of economic system. And this inevitably requires economists to reflect about the way in which agents, including economists themselves, do and should make use of economic knowledge.

In sum, the production of knowledge about the economy is both an economically conditioned and an economically conditioning activity. There are certain forms of knowledge that sustain the economy as it is, and there are other forms of knowledge that foster critical reflection about the economy. *The question that lies at the heart of Critical Political Economy is how economics can best contribute to the interaction between stabilizing and destabilizing reflection within the ongoing process of economic life.* Each economic paradigm being a possible economic world, the degree to which it is stabilizing or destabilizing will depend on how close the actual economy is to the possible economy represented by the paradigm. That, in turn, depends on whether the economists teaching that paradigm have, in the past, succeeded in persuading the vast majority of the population that the possible economy represented by their paradigm is a worthwhile horizon toward which to strive. And that, in the end, depends on whether the people, when using their reflexive capacities to the fullest, find it rational—upon due reflection—to build a social world such as the one suggested by the paradigm.

So in a liberating economy *the effect of a given paradigm on the actual economic process depends on what can be called that paradigm's "reflexive appeal."* Will rationally reflexive individuals adopt this paradigm and endeavor to implement its assumptions and mechanisms in the economic world in which they actually live? This is, as I already indicated, in part a contingent issue. However, it implies that a large part of the economist's activity consists in *rational normative argument* and not in mathematical proof or in "positive science." The main reason why this is so is that when you offer for reflection a possible economic world *you also, by the same token, offer a way of being a rational agent.* Fully reflexive individuals are *neither institution takers nor rationality takers.* If you want to persuade them rationally that (for instance) a perfectly competitive market economy is the right motivating ideal, you also need to persuade them rationally that they ought to become the kinds of agents needed by that perfectly competitive market economy to have the good properties you claim it has.

The need for a notion of critical descriptiveness

Let's assume for a moment that you've been able to do this. Then the self-consistent model of a perfectly competitive market economy operated by

non-cooperative, rational arbitragers focusing on a limited number of environmental variables will have become not a description of “reality” in any relevant sense, but a *normative program* carried forward by a certain number of agents in the actual, ongoing economic process which may be all but perfectly competitive. Surely this is what is occurring at the present time with most of the material mainstream economists teach to their students.

Such an approach to the deeper meaning of supposedly descriptive economic theories challenges traditional conceptions about “science.” Still, my approach of “theories as political programs” is still a realist approach, *provided we distinguish descriptive realism*—which is testable on existing data—*from what I would call “critical descriptiveness.”* A critical description of reality is quite often not testable except by appealing to the subjectivity of the empirical individuals who adopt the paradigm as a normative motivating ideal. The perfectly competitive market economy is certainly not *positively* descriptive of any institutional setup anywhere in our world. But it is *critically* descriptive to the extent that it is adopted by real people as the horizon towards which they want their society to move. Let me spell out this notion in more detail, taking my cue from a recent controversy about the ideological roots of neoclassical economics.

Some analysts of mainstream economics have tended to suggest that because of its heavy use of rational-choice analysis, game theory, and evolutionism, the discipline may possess a root in right-of-center, pro-capitalist ideology or even in a generally neoliberal view of society. S. M. Amadae’s book entitled *Rationalizing Capitalist Democracy* (Amadae 2003) is a high-brow representative of this position. Its subtitle—“the Cold War origins of rational choice liberalism”—reveals the political thesis involved. Picking up on a theme which Jean-Pierre Dupuy and Philip Mirowski had already explored in a distinct, more methodological vein (Dupuy 2002a; Mirowski 2002), Amadae claims that anti-Soviet politics and the ideological struggle against Marxism played a major role in the institutional promotion of methodologically individualistic, emergence-oriented social science in the post-War United States, crystallizing most notably around the RAND Corporation.

Contemporary practitioners of the kind of political conceptions targeted by Amadae—whether it be Ronald Reagan, Margaret Thatcher, or, in a somewhat different direction, Tony Blair—do indeed appear as disciples of Hayekian and complexity economics, with its emphasis on decentralized cognitive processes and on competitive dynamics. As a case in point, Anthony Giddens’s work on the foundations of a social-democratic “third way” between free-market capitalism and collectivist socialism (Giddens 1994, 1998) can be interpreted—and criticized—as an awkward mixture of “family-values” communitarianism and Hayekian liberalism. Hayekian and complexity economics have by now pretty much merged with the mainstream of rational choice economics, as we saw in Chapters 3 and 4. The result, as we also saw, is a body of theory that attempts to explain the economy using “rational” adaptive automata.

Now, there is little doubt that there has been, over the past 50 years, what Amadae calls “a significant change in the language of sovereignty” (p. 4). There is also little doubt that the language of consumer sovereignty, couched in terms of uncritical and adaptive choice, has tended to override the vocabulary of critical citizenship and activism. The question is whether these shifts in terminology and worldview were caused specifically by mainstream economics and its theoretical options. As David Colander has pointed out,

Had the branches of rational choice theory she [Amadae] described, social choice theory, public choice theory, and positive political economy, never developed, our economic and political systems would still be there, and would have as much, or as little, support as they now have.
(Colander 2005: 21)

He certainly has a point. Theoretical paradigms, however well-structured and institutionally powerful, cannot be considered as prime explanations for the survival or demise of a set of economic and political institutions. So, certainly, even without mainstream economics our capitalist democracies would “still be there,” as he puts it. I am less in agreement, however, with his claim concerning the *degree of support* for these institutions. Sure enough, as another reviewer has expressed it, Amadae’s narrative is too “overarching” and “has a tendency to gloss over some differences and distinctions and over-emphasize others” (Leonard 2005: 162). Still, her suggestion that mainstream economics provided a *rationalization of what a liberating economy fundamentally is and ought to be* for intellectuals and politicians eager to avoid outbreaks of socialist and communist worldviews in the “free” world is a suggestion that shouldn’t be brushed under the carpet too quickly.

Now notice I have made two statements:

- (a) that the shift in vocabularies from the critical, active citizen to the uncritical, adaptive consumer was probably not *caused by* the development of mainstream economics

and

- (b) that mainstream economics *provided a rationalization for* such a shift in conceptions and the stabilization of the “consumer sovereignty” discourse in politics and economic policy at the end of the twentieth century and at the beginning of the twenty-first.

I don’t see this as a contradiction, provided we devise the right methodological categories to make sense of both (a) and (b) together. In fact, it turns out we can accommodate Amadae’s and Colander’s positions simultaneously. In order to do this, let me introduce the notion of “*critical descriptiveness*.”

Over a given time period, an institutional reality R and of a theoretical construct T can develop concomitantly. However, they need not be merely correlated in a spurious way. Nor need R be causally deducible from T , or T from R . In fact, T may have a “connection” to the historical reality of R without being empirically descriptive of R or even being, in any strong sense, a positive theory of R . I am pointing here to a specific connection between theoretical conceptuality and institutional reality. It is a connection that can be made sense of if we accept that theoretical concepts can be, and frequently are, *critically descriptive of* existing institutional realities. T is a *critical description* of R if the key concepts in T are (i) neither in complete contradiction with the way R appears to us to be operating empirically, (ii) nor mere positive models of the way we consider R to be really and ultimately working, and if moreover (iii) the gap between (i) and (ii) is taken as an indication of how T might be used to internally modify R into a “fully T -adequate” reality, $R^*(T)$. Before embarking upon the exploration of this set of ideas, let’s for a moment come back to the debate between Amadae and Colander.

Amadae writes that “the rationality project is better thought of as a normative and prescriptive science of decisionmaking, because it is highly abstract and does not necessarily pertain to the average person’s approach to making choices” (p. 8). At the same time, she claims that this project “of fully exploring the nuances of rational decisionmaking deserves recognition as a remarkable expression of Western civilization’s ongoing fascination with reason” (p. 6). Now, both these statements are descriptive. They state positive claims about actual features of Western culture, imbued as Amadae sees it with a deeply normative “rationality project.” Obviously you can’t claim simultaneously that the whole of Western culture is structured by the normative ideal of rational choice—a project, Amadae also claims, that has been “ongoing” for over two centuries—and that mainstream economics has no positive bite whatsoever for our understanding of the way Western citizens spontaneously think about and perform their actions. In fact, Amadae can claim nothing of the sort if her idea that mainstream economics is a “rationalization” of capitalist democracy is to mean anything. The question, however, is what exactly Amadae *is* claiming about the status of mainstream economics as a tool for rationalization.

Colander writes that Amadae’s discussion “attributes far too much importance to rational choice work in providing an ideological foundation for democratic capitalism” (p. 22). At the same time, he claims that rational choice theory is

an interesting research program that scholars followed for the same reason they follow any research program: because it was interesting and potentially insightful, and because working on it offered them possibilities for articles and books that they needed to advance their careers.

(Colander 2005: 20–1)

Thus, he submits, economists

were not especially ideologically committed, but instead were willing to follow the analysis wherever it might lead. Scholars gravitated to RAND because that was where the money and interesting people were [. . .]. The status quo bias, in selectively emphasizing results, did the rest and accounts for much of the ideological use of the rational choice theory.

(Colander 2005: 21)

Both these statements, again, are positive ones. They embody Colander's suggestion as to how things actually occurred. They do not explicitly single out a "rationality project," but neither do they reject its existence. In fact, Colander couldn't really explain (so I surmise) why "the money" was especially at RAND and why the people flocking there were generally seen as "interesting"—which generated a cumulative effect well known by systems theorists—if it were not for the fact that the work done at RAND, and the more or less self-conscious rationalization it led to when coupled with the period's "status quo bias," were guided by a kind of *normative consensus among scholars*. This was, in fact, a largely Hayekian normative consensus that the USA should promote an economy in which agents are driven by "spontaneous consciousness" and not by grand designs or second-hand ideas and ideals—in short, not by "conscious spontaneity" and the critical rationality accompanying it. *US economists and politicians were acting from a Hayekian critical theory of the economy rather than from a Horkheimerian one*. Only if this was so can we understand Colander's idea that the rationalization of capitalist democracy was a largely unintended, but nevertheless "collectively rational" and not merely stochastic, consequence of the interest of individual scholars in mainstream economics.

Both Amadae and Colander require that the predominance of mainstream economics be *neither* (1) strictly causal in the stabilization of capitalist democracy, *nor* (2) strictly caused by the stabilization of capitalist democracy, *nor* finally (3) just haphazardly emerging from unreflexive interactions between scholars looking for some intellectual toy to play with. In short, we can make sense of both their positions if we first accept that *mainstream economics has been a predominant component of Western democracies'—and especially North America's—"normative atmosphere" for the last 50 years*. Mainstream economics harbors a connection with existing conceptions of a liberating society and of a rational person, but that connection is neither purely descriptive nor purely utopian. To spell out this special kind of connection, I have coined the expression "critical descriptiveness." And to make the connection even more explicit, I suggest that mainstream economics has in fact become one of the main tools for *social criticism* in the Western world. In a nutshell, mainstream economics is descriptive in a way that does not preclude (and even requires) its being critical, because

mainstream economics is essentially critical. It isn't positive "science," it's a paradigm looking for—and finding for a while—reflexive acceptance in the population. To do so, it had to maximize its reflexive appeal, and it tried to do this (like Marxism had earlier in the Soviet block) by claiming to offer a "scientific" picture of how an economy functions in the "free" world.

There is a close kinship between the notion of a theoretical construct *T* being a "critical description" of a reality *R* and the notion of using *T* as a tool for criticism of *R*. Critical descriptions of the economy are essentially tools for criticism of the economy. In fact, critically descriptive theories are what Horkheimer calls critical theories, with lower-case "c" and "t." What this discussion suggests is that, in fact, the neoliberal Hayek, the Marxist Horkheimer and the mainstream economist of today are all offering up critically descriptive theories of the economy. The emergence and mutual transformation of critically descriptive theories within a liberating economy is what bottom-up Critical Theory (with capital "C" and "T") attempts to understand. Critical Political Economy, which will be developed in Part IV, designates this complex dynamics of critically descriptive economic theories in a complex economy.

7 A self-criticizing economic system

How would an economy inhabited by critically rational agents work? How would “spontaneously conscious” (adaptive) and “consciously spontaneous” (reflexive) actions coexist in their interactions? In this chapter and the next, I want to broaden the foundations of rational-choice theory sufficiently so that the challenge to mainstream economics developed in Chapters 2 and 3 can be made sense of on the background of the Frankfurt–Vienna partnership set out in Chapter 6. In other words, I want to embed the agents’ critically rational action within a conceptual framework in which Hayekian and Horkheimerian perspectives can coexist.

As I argued in detail in Chapter 4, even left-wing aspirations to social emancipation and radical economic change have to take into account the contingency inherent in complexity. You and I are—and ought to be—forevermore unable to put into force a complete construct of the fully emancipated economy, in all its procedural and consequential details, as we would like it to materialize here and now. It will necessarily have to emerge from within the ongoing, complex economic process. This emergence is never controllable. However, even uncontrollable emergence needs to be fuelled by our desires and aspirations. So we still need to reflect on the individual dispositions which impel us to enter into the interactive process of emergence. *Without interactions between critically rational agents, whatever emergence occurs will be the mere “blind” result of uncritical behaviors “bumping into” each other. A liberating economy is not immune to the perverse effects of uncontrolled emergence, but its agents interact on the basis of explicitly critical vistas of an emancipated, empowering economy.*

Asking ourselves what dispositions can ground such critical vistas doesn’t mean we thereby replace bottom-up emergence with top-down imposition. A liberating economy isn’t mainly defined by the mechanisms through which people interact—markets or anything else—but by *the kind of rationality people bring to the interaction*. It may be that certain interaction mechanisms are more conducive to the development of critical rationality among agents. But what counts in the end is that rationality. The hallmark of a genuinely liberating economy is that its emergence mechanisms are

fueled by freely thinking and reflecting agents rather than by uncritical automata-individuals.

The fact that the economy is a complex adaptive system will not be questioned. “Adaptation” is not a problem in itself: *uncritical, mechanical* adaptation is the problem. We need to understand how being critically rational affects the way agents “harness” the complexity (Axelrod and Cohen 2000) of an economic system whose aggregate states emerge as the partly unintended result of the adaptive interaction of (groups of) individuals. Being critically rational, each of them is acting on an “internal model” intended to “harness” the existing system’s complexity toward the realization of his specific critical description of a better system. Since, as cognitive science has shown, each individual brain is itself a complex distributed network giving rise to emergent properties in the form of cognition and intentionality (see, for example, Varela *et al.* 1991), we are facing the following task: how to comprehend the emergence of an *emancipated economy* as the harnessing of the complexity of a social system S of complex interactors i , each of whom acts intentionally on a *critical description* c_i of S ?

This problem looks daunting, but that doesn’t mean we can escape it. Understanding how markets generate order with everyone pursuing “blind” interests must have seemed to the eighteenth-century Scottish and British philosophers an equally daunting task, but they tackled it. In fact, the market-order problem is a *subspecies* of the more general problem just outlined. It postulates minimally complex, or even non-complex, brains and reduces agents’ intentional actions to a very narrow class of uncritical interests (Hayek 1973–9; Lindblom 2000). In our broader version of the “complex-system-of-complex-agents” problem, brains are complex and the interests agents will be taken to pursue will not necessarily and not even usually be the interests attributed to individuals by Smith, Hume, or, for that matter, Hayek. This is because, as we have seen repeatedly, an *emancipated economy* can no longer today be likened to an atomistic market in which the uncritical pursuit of self-regard is the main emancipatory drive. Self-interest was empowering compared with pre-bourgeois economies, but it no longer is nowadays. So the mainstream economics version of the “complex-system-of-complex-agents” problem can now be seen as a particular, and probably degenerate, case of a much more general problem. This chapter aims to clarify as much as possible the main cognitive issues involved in searching for a solution to that more general problem.

Whereas the previous chapter was an in-depth exploration of the social-philosophy foundations of bottom-up Critical Theory, this chapter will deal with its rational-choice and cognitive-science foundations. We will start by discussing the way to conceptualize emancipation in a complex adaptive system, and offer a simple taxonomy that will help to clarify subsequent issues. We will then analyze the role which critical rationality plays in social emancipation. After that, we will show bottom-up Critical Theory at work in the study of the complex dynamics of a liberating economy, i.e., an

economic system in which interactions occur between critically rational individuals. This makes it possible to define the genuinely liberating economy as a *self-criticizing system*. Complex emergence and critical rationality can coexist. Accordingly, in Part III, we will use the concepts developed in Part II to explore the frontiers of complexity economics in search of the emancipatory horizon we found to be missing in Part I.

Emancipation in complex systems

Emancipation and autonomy in the Enlightenment

In the twentieth century, the psychoanalytical and linguistic turns have shaken the foundations of our self-perception as willful, purposeful beings. Are we being acted on by our past and our language? Is our consciousness a determined thing? In the twenty-first century, with the advent of neurophysiology and the philosophy of mind, we may realize that the very “seat” of our consciousness lacks spiritual and even material foundation. Are we virtual networks? Are we distributed neural networks? The onslaught of the automaton-individual is in process, and the “*homo*” part of *homo sapiens* is immersed in self-doubt.

Consciousness and volition itself—that Holy of Holies of the Enlightenment—appear to us more and more as emergent phenomena of interconnected networks of neurons. Our sense of identity and our feelings of “self” may in fact rest on a false continuity. Perhaps our continuity is really the result of repeated re-enactments of brain connections triggered as “perturbations” or “irritations” by an unceasing, active involvement with a natural and social environment. Thus, *who I am* may be just a tentative narrative that emerges from a sequence of “microidentities” succeeding each other through breakdowns or crises of their associated “microworlds.” The “I” is the immediate coping device holding together the *history of structural couplings* between microidentities and microworlds. (On all this, see Maturana and Varela 1987; Varela *et al.* 1991; Varela 1999; Lakoff and Johnson 1999.)

Now, even if you are a humanist, it’s difficult to see how you could today make sense of the *idea of autonomy* without heeding the results from cognitive science. Autonomy is not only a property of a system that transforms inputs—“messages”—into outputs—“actions”—by processing its environment and possibly bending it to its interests (Cartesian version) or filtering it through its wired-in moral imperatives (Kantian version). Autonomy is also a property of *internal coherence of an operationally closed system* that constantly creates itself (*autopoiein*) through its structural couplings with various environments (Varela 1983). In both cases, autonomy means essentially the capacity for not being made suddenly unrecognizable by inputs or perturbations. It means changing while not changing too much, not mutating too abruptly. The two perspectives need not exclude one another, but

they do highlight a difficulty: once we accept that human subjects as systems are engulfed in a dynamic flow of mutually interpenetrating and interacting environments, how do we balance the “passive” component of information reception and the “enactive” component of embodied cognition?

In both instances, we are inevitably confronted with the *puzzle of internal finality*. Are our goals internal to us, even though we may be merely the result of our environment? As Jean-Pierre Dupuy (2002a: 10 and 46) has shown, this puzzle can usually be—and frequently has been—resolved through a retreat into an *as if* methodology. We can simply act and think “as if” a given system had an internal finality. We could use the idea of internal finality as a heuristic device for description and explanation. In that case, we need not postulate any actual *telos* in the system under consideration—not even in the human subject. Dupuy himself doesn’t believe this is a sound retreat. However, he notes the recent development of a “subjectless philosophy of mind” that tends to *treat our conscious desires and aspirations as virtual epiphenomena of neural self-organization*. This leads him to a striking insight:

Kantianism, yes, but without the transcendental subject [. . .]. This formula applies wonderfully well to cybernetics. [. . .] A model of the mind, yes; of the subject, no. [. . .] In inventing a type of transcendental inquiry that did away with the subject, cybernetics was to greatly assist the deconstruction of the metaphysics of the subject.

(Dupuy 2002a: 107)

Dupuy’s theses around this crucial claim have not yet received sufficient attention in philosophical circles. He suggests that cybernetics was not so much designed (as often believed) to make machines into subjects but, rather, that it was meant to make subjects into machines. This is what he calls the project of “mechanization of the mind.” It leads him to interpret contemporary philosophies of autonomy, most notably John Rawls’s recasting of Kantian autonomy, as attempts to model human subjects as automata so as to simply assume away the complications that come from people’s desires, drives, and anxieties and their capacity to generate social disorder (Dupuy 2002c).

This silencing of “metaphysics” in favor of a “formalization” of reason was also diagnosed by Horkheimer, as we saw in Chapter 5. Although Dupuy does not allude to this directly, we know from Horkheimer’s discussions that mechanized reason swept under the carpet something which Kant himself saw as the hallmark of the Enlightenment. This is the *deep-seated human desire for emancipation*. One of Kant’s difficulties—and here he falls prey to Dupuy’s critique of cybernetic autonomy—was to accept that revolutionary violence might in some historical situations be the only way of breaking a deadlock. There may be no solution other than strong antagonism to collectively attain freedom from oppressive social structures.

This led Kant to his ambivalent claim that although the French revolution was in principle one of the great emancipatory achievements of the *Aufklärung*, the individuals whose actions, decisions, and interactions caused the emergence of the revolutionary phenomenon were irrational, bloodthirsty brutes unworthy of emancipation.

So there is a significant strain within modern thought that wishes to see people as automata so that emancipation would always occur without violence and antagonism. Instead of seeing that antagonism is usually caused by people's critical reflection on their lived reality, you postulate that they don't reflect at all but exercise their "autonomy" in the form of automaticity. Mainstream economics, as we saw, is one of the heirs to this "wishful liberalism" that *wants to have a liberating society without freedom-desiring agents*. The reduction of subjectivity to automatic routines comes from this deep-seated contradiction: a way of thinking that requires the subject's suicide in exchange for "subjectless" emancipation.

But this isn't the only possible version of an empowering society. The connection between individual rationality and the aspiration to (individual and/or collective) emancipation from oppressive structures has been strong and enduring in the whole Enlightenment tradition. The Enlightenment contains other resources than complexity economics and neuroeconomics.

This strong and enduring link between emancipation and the metaphysics of the subject is what impelled Horkheimer to make the ironic claim that "Metaphysics may well be proud of the newest attack upon it [by positivism and empiricist pragmatism]; it [metaphysics] has been identified with thought" (Horkheimer 1937b: 187). The remark is ironic because as a materialist Marxist, Horkheimer did not himself have much affection for metaphysics, which he identified with idealism. What he means, however, is that at least metaphysicians *think*. This implies that the pragmatists and the philosophers of "common sense" and "common language use" *don't* think according to Horkheimer. More precisely, they don't practice "thought" in the only way which Horkheimer deems worthy of the Enlightenment tradition. Thought should aim at *constructing a theory of contemporary society with a view to analyzing the obstacles that stand in the way of further emancipation in that society*.

Thus, what is intrinsically required by the Enlightenment tradition is a specific type of knowledge that breaks away from what he calls "traditional" knowledge, namely knowledge based (inductively or deductively) on first-degree, uninterpreted observations and facts. As we saw at length in Chapters 2 and 5, to such traditional scientific inquiry he opposes "critical" theory. Thus, autonomy in the revised "metaphysical" sense promoted by Horkheimer is an alternative interpretation of the Enlightenment project. It consists in an individual's awareness (i) that she is taking part in the production of her own historical form of life *and* (ii) that this form of life should be constantly subjected to critical scrutiny from the viewpoint of emancipation.

In this perspective, Theodor Adorno wrote of a *critical impulse*: “The critical impulse is at one with resistance against the stiff conformity of whatever is the prevailing opinion” (Adorno 1962: 555). But isn’t such a statement just thinly disguised elitism? No, if we accept Charles Lindblom’s observation to the effect that we are all, more or less consciously, reflexive individuals:

Everybody always probes. However badly, all of us engage in examining volitions, even while asleep and both consciously and unconsciously in waking hours. [. . .] We speculate from time to time about the patterns of our lives and changes we might attempt.

(Lindblom 1990: 30)

Each individual is both subjected to social and historical limitations on what he can reflexively criticize, and is able to criticize these limitations. You aren’t just blindly adaptive; you have the ability to reflect on your lack of reflexivity. This is the basic insight of humanists. You can’t consistently say, “I’m not a reflexive agent and no one else is, either” because this already shows that you reflected on whether you and your fellow humans are reflexive or not.

This notion of *autonomy as reflection for emancipation* differs significantly from the notion of autonomy as the autopoiesis of an operationally closed system. But it needs to be made compatible with it if we are to be both Enlightenment humanists and informed of current scientific advances. This is one of the key claims of this chapter. We need to understand how *subjective aspirations to an emancipated economy and subjectless economic processes* can be brought together within economic theory.

Harnessing complexity rather than making it go away

Everything that has been said up to now is undoubtedly in line with what enlightened reason seems to demand. But the notion of emancipation itself has remained pretty abstract. When I say this, I emphatically *don’t* mean what is usually meant in analytical political philosophy. Analytical philosophers contend that just talking about “freedom” or “liberty” isn’t enough, that these are underdetermined words that have to be spelled out. Is your philosophy of freedom libertarian, liberal, and so on? (See, for example, Van Parijs 1991; Kymlicka 2002; Arnsperger and Van Parijs 2003.) This is true, but here I use the word “abstract” in a different sense. I mean that no affirmation of an aspiration to emancipation, regardless of how well it has been “spelled out,” can hold water without a parallel reflection on (i) the conditions which, in the prevailing economy, make that emancipation empirically feasible or only wishful thinking and (ii) the structural properties of the prevailing economy which create the conditions identified in (i).

In other words, to avoid abstraction, normative judgment needs to be supplemented by both theoretical and practical judgment.

Usually, question (ii) is harder to answer than question (i). Just because you are aware of empirical obstacles doesn't mean that you'll know the degree to which they are due to stable or ephemeral properties of the economy in which they arise. You need to be able to say something about the context in which the unification of subjective aspirations to an emancipated society, on the one hand, and of subjectless social processes, on the other, is to take place.

What is the meaning of "emancipation" in a complex adaptive economic system? To get ourselves started in thinking about this, the best thing to do is to latch on to Axelrod and Cohen's reasoning about the "harnessing" of social complexity, about which we have already talked in Chapter 3. Their whole book (Axelrod and Cohen 2000) is centered on the question of how the structural features of a system can be utilized to make for optimal interventions. Holland equates this essentially with the question of "locating 'lever points' in complex adaptive systems" (Holland 1995: 5). Activating such lever points will never alter the fact that the system is complex and operates through emergence. It may, however, affect the structure (the types of interactions that produce the outcome) of that emergence, its pattern (in terms of the distribution of individual outcomes), and/or its value (by some aggregate criterion for judging the outcome).

In line with this, Axelrod and Cohen want to provide "a framework, a way of thinking through a complex setting that takes advantage of complexity *to generate new questions and new possibilities for action.*" This suggests "a device for channeling the complexity of a social system into desirable change, just as a harness focuses the energy of a horse into the useful motion of a wagon" (Axelrod and Cohen 2000: 2, italics added). As we saw in Chapter 3, according to them three key questions have to be asked: "What is the adequate balance between diversity and uniformity? What should interact with what, and when? Which agents or strategies should be copied and which should be destroyed?" (Axelrod and Cohen 2000: 22–3). To that end they intend to tell their readers how they could

influence the amount of variety in a system so as to affect the balance between exploration and exploitation, to alter the structure of interactions within the system, and to adjust the way success is measured and amplified.

(Axelrod and Cohen 2000: 3)

Nothing here seems to forbid meaningful connections with the Frankfurt School's intimations of critical theorizing and individual aspirations to emancipation. However, Axelrod and Cohen's otherwise fascinating book turns out to be, in that specific respect, a bit disappointing. Perhaps out of

fear of being “ideological,” but more probably out of a spontaneous attraction for business opportunities and in the hopes of gleaning large “clients” for their theory (which started as a report to the United States Defense Department on optimal recruiting activities to bolster internal creativity in the US Army), the two authors almost entirely focus their discussion on examples of organizational restructuring, high-technology systems, and imperfect-competition management. When they do stray from business-related questions, to discuss AIDS prevention or the formation of “social capital,” they still remain mostly focused on issues narrowly connected with contemporary industrial market society. Taking that society to be a complex adaptive system, or rather a system composed of numerous complex adaptive subsystems, their book offers analytical tools to either make more money (by being smarter for oneself, or by organizing others’ activities better) or implement better social and economic policies—both, however, *within the overall structure* of industrial market society.

Happily, this critical assessment of their book isn’t entirely negative. It can allow us to make substantial progress in our understanding of emancipation in bottom-up Critical Theory. Although they don’t express it that way, their analysis implicitly avows that there are *at least three tiers or levels of emancipation* in a complex adaptive system. To clarify these levels, let’s distinguish two things:

- (i) an individual *course of action* given the system’s overall structure—i.e., given
 - (a) the directed graph(s) that define its interaction pattern(s) and
 - (b) the motivations that generate flows between nodes of the graph(s);
- (ii) the *overall structure of the system* itself, i.e., the features (a) and (b) just mentioned.

Let *S* stand for the system, *CA* for “course of action,” and *OS* for “overall structure.” I want to connect Axelrod and Cohen’s idea of harnessing complexity with Horkheimer’s idea of social criticism by distinguishing three types of individual aspirations to emancipation:

- (I) *Opportunistic harnessing of social complexity*: Given the features (a) and (b) of *S*, take the courses of action which pursue your *unreflected* idea what “free” means. This is the idea of freedom which the overall logic inherent in (a) and (b), as well as your location on the graph, spontaneously attributes to you. You ask yourself, “How can I be freer in the system as it operates, given its in-built criterion of what ‘free’ means?”
- (II) *Critical harnessing of social complexity*: You ask yourself, “How could ‘our’ system become a ‘better’ one, so that ‘we’ are freer than before?” This diffracts into two subcategories:

- (i) *CA-critical harnessing*: Given the features (a) and (b) of *S*, take courses of action which will make use of (a) and (b) to pursue a *reflected* and *intra-systemically coherent* idea of what “free” means. This is an idea which the overall logic inherent in (a) and (b), as well as your location on the graph, does not spontaneously attribute to you, but which remains consistent with upholding structural features (a) and (b). You want to change your course of action given the overall structure.
- (ii) *OS-critical harnessing*: Take courses of action which use (a) and (b) to pursue a *reflected* and *extra-systemically coherent* idea of what “free” means. This is an idea of freedom whose rational pursuit requires modifying the overall logic inherent in (a) and (b), i.e., requires modification of (a) and/or of (b). By your course of action, you want to alter the overall structure.

Category I corresponds to purely spontaneous activities in which individuals in the industrial market society seek to “make the best of it,” possibly with the help of professional consultants who advise them on greater efficiency, outsourcing, rationalization, better employability and flexibility, and so on. Category II(i) covers various instances of “changes of views” in the industrial market society, as when a unionized worker chooses to become a Republican militating for corporate tax cuts, or when a doctor converts to social medicine even though this cuts her income by 40%, or when a former CEO finds he must become Minister of Social Affairs to bolster social-democratic tax policies and to introduce a Tobin tax on financial transactions. Finally, category II(ii) covers all revolutionary or deeply reformist actions aiming to modify the basic patterns of social interaction—say, replacing hierarchy with participation *à la* Hirschman (1970), or substituting decentralized planning *à la* Albert (2003) for markets—and/or to alter the basic values and goals harbored by individuals.

Obviously, category II(ii) doesn’t merely embody the good old “specter of Stalinism” in which changes in interaction patterns and in “mentalities” are more or less hammered into people at the behest of a smug but brutal intelligentsia. As all educational reformers know (see, for example, Atlan 1991), efficiently changing mentalities or ideas will frequently involve a long, slow process of diffusion extending over generations, and always in danger of ending up where one had not intended it to. In fact, since they are concerned with harnessing the *prevailing* social complexity, all three above categories of emancipatory aspiration are, by definition, concerned with *intra-systemic* intervention. Critically rational agents always alter economic reality from within. This seems to leave room for at least three broad categories of action in each case:

- (a) *Engineered criticality (lever-point)*: Obtain a position of leadership or influence and act so as to induce the (sub-)system to self-organize into a critical threshold that will lead into a phase transition.

- (β) *Discursive dissemination or “contamination” (voice)*: Obtain the means and/or positions necessary for you to disseminate your ideas about interaction patterns and/or about individual and/or collective goals and motivation. (You may, of course, either want to defend the existing ones against attack or to promote non-existing ones).
- (γ) *Intentional disconnection (exit)*: Voluntarily cut off the directed flows to your node or to a group of nodes relevant to you on the social (sub-)network, and attempt to either reconnect into another (sub-)system or to make the disconnected group of nodes self-sufficient.

Category (α) covers many phenomena ranging from the acquisition of political mandates in order to push an agenda to the emergence of a revolutionary avant-garde. Category (β) covers both contrarian initiatives such as denigration campaigns and official opposition, and apologetic initiatives such as propaganda and re-election campaigns. Finally, category (γ) is concerned mainly with the creation of what have become known as “intentional communities,” but also with phenomena such as the collective resignation of workers in order to create their own self-managed firm with new intermediaries and customers. The intersection of emancipation types I, II(i), and II(ii) and of action modes (α), (β), and (γ) generates a nine-element taxonomy which, although perhaps not exhaustive, seems to cover most aspects of emancipatory aspiration.

The cognitively empowered society

Given my stress on emancipation through critical reflection about and within complex economic systems, I will mainly focus on categories II(i) and II(ii) as well as (α) and (β). A critically—as opposed to just opportunistically—emancipated society is one in which people seek to pursue CA- or OS-critical action and seek to do so mainly by looking for lever-points and by the practice of voice, as opposed to mere exit.

In that sense, the critical harnessing of complexity is a specific sub-variety of what in Chapter 4 we called social problem-solving:

By social problem solving, we mean processes that are thought to eventuate in outcomes that by some standard are an improvement on the previously existing situation, or are presumed to so eventuate, or are conceived of as offering some possibility to so eventuate. We do not limit the term to processes that achieve ideal or even satisfactory outcomes; and in that light, “problem-attacking” is more accurate a term than “problem-solving.”

(Lindblom and Cohen 1979: 4)

Lindblom and Cohen add a crucial clause, which goes to the heart of our present discussion:

Nor do we limit the term to the intellectual processes through which people grapple with problems. Coin tossing is also a problem-solving activity. Some students of problem solving hold that “solve” implies understanding, as in solving a mathematical problem. For us, “solve” does not require an understanding of “the problem” but only an outcome, as when coin tossing solves a problem of whether to turn left or right at an unfamiliar, unmarked road junction.

(Lindblom and Cohen 1979: 4)

This considerably broadens Karl Popper’s (1962) famous and foundational “fourth thesis” concerning the structure of social science, namely: “Knowledge does not start from perceptions or observations or the collection of data or facts; it starts, rather, from *problems*” (Popper 1962: 65). Contrary to Lindblom and Cohen, Popper does require an understanding of the problem to be solved. For him, we have to be able to model the problem in a hypothetical form conducive to strictly logical deductive operations. And he imposes on the derived solution the imperative of what he calls “criticism.” By this, he means simply that “all criticism consists in attempts at refutation” and “the logical instrument of criticism—the logical contradiction—is objective” (Popper 1962: 67).

One of the possible—and, the Frankfurt School Marxists would claim, in our alienated industrial market societies, very likely—implications of the Popperian imperative of critically rational problem-solving is the following. The problem of *critical* social emancipation either would turn out to be a problem of very limited scope or would be seen as based on empirically false assumptions about the motivations of individuals. Where, the logical positivist would ask, do you empirically observe today that individuals have “aspirations to emancipation?” You will, at best, be able to gather some polling or questionnaire data on people’s aspirations to a better life for themselves (category I). These aspirations will imply either a view of having to go it alone (category γ) or a mildly vocal call (category β) for certain intra-system changes (category Ii): more taxes or less taxes, new regulations to bolster or to limit the freedom of market actors, and so on. Certainly, you are unlikely to find large portions of the population putting forward alternative views of the “deeper” structure of society (category Iii) and believing that they have to acquire lever-point positions (category α). At best, they will profess the belief that the democratic election of representatives makes it possible to manage industrial market society from within its self-imposed limits. In short, “recognizably human” people are either opportunistic or mildly CA-critical. They shy away from costly CA-critical action as well as from OS-critical harnessing.

Horkheimer and Adorno would not dispute these *prima facie* observations. They would, however, refuse to take them as the final word, contrary to what falsificationism does. In his reaction to Popper’s conference on the structure of social science, and in reaction also the spread of pragmatist and

“common-sense” philosophies, Adorno (1962) seeks to broaden the scope of possible aspirations in order to go beyond the trivially observable ones. He thus aims to make OS-critical, as well as strongly CA-critical, emancipatory aspirations an integral part of social science. He does so by claiming that contrary to psychology, which deals with observable “facts” (types, behavioral patterns, and so on), social science ought to investigate also what in Chapter 5 I called *non-empirical reality*. This designates all the “invisible” tendencies and potentials which fail to come to the fore precisely because the individuals who have them live in an economic objectivity that denies them. Adorno shares Popper’s wariness of psychological reductionism, but he believes that if you reject psychology too quickly, you will actually fail to see an important momentary truth:

The separation between man and the social environment [is] a fact given in the current landscape of science whose hypostasis Popper fundamentally rejects. The subjects which psychology purports to examine are not merely, as the usage has it, influenced by society, they are intimately formed by it. The substrate of “man in himself,” which supposedly would be facing the environment, would remain an empty abstraction. Conversely, the socially active environment is a product—albeit an indirect and ill-recognizable one—of men, of organized society. Nevertheless, psychology cannot be considered the bedrock discipline of social science. [. . .] *Society is a general process in which men, surrounded and steered and formed by objectivity, nevertheless react back on that objectivity [. . .]. Only those who are able to think society as something other than the existing one can come to perceive it as a problem*, in Popper’s vocabulary; only through that which it is not can society reveal itself as what it is—and that is indeed what should be most at stake in sociology if it did not, as is the case in most of its projects, remain content with catering to the aims of public and private administration.
(Adorno 1962: 563–4, italics added)

Charles Lindblom echoes the same concern when he laments that

many kinds of studies of ignorance and irrationality treat them as somehow fixed, hence ignore their social causation. Citizens simply do not bother to probe—but why should they? They are interested instead in jobs and “happy families.” Thus is dismissed the study of social causation of the defects [. . .]—that, in short, they have been deliberately or inadvertently induced or caused to probe badly rather than well often gets no more than a formal acknowledgement rather than study.
(Lindblom 1990: 181–2)

This amounts to questioning the very criterion which Popperians use for their brand of “criticism,” namely the separation of facts from theories,

seeing theories as representational devices to be deductively tested against “the facts.” The Frankfurt School’s point is that this criterion cannot be consistently upheld. The way a social scientist is able to go about collecting, interpreting, and even eliciting “the facts” from empirical individuals depends on the way in which overarching social mechanisms (which, Adorno acknowledges, are emergent phenomena) shape these individuals’ self-perception and their place in the social world. Thus, Raymond Geuss’s methodological position, also to be found in the work of Raymond Boudon (2003) and others, that “I want to keep the notion of ‘want/desire’ closely tied to avowal and behavior” (Geuss 1981: 47) simply cannot be upheld. “The renunciation of sociology to a critical theory of society stems from resignation: we no longer have the nerve to think the whole because we despair of ever being able to change it” (Adorno 1962: 565).

But this is the crux of the matter. Today’s theories of complex adaptive systems *do* “think the whole” in very explicit terms indeed. Moreover, complexity scientists agree that lever points and other tools for harnessing social complexity may be available—though not yet in a fully systematic way (see Holland 1995: 161–72). So *in principle*, complexity economics contains none of the demarcations between observable facts and imagined aspirations, or between the agents’ avowed goals and the modeler’s abusive projections, which Adorno laments. Thus, contrary to what Axelrod and Cohen’s selective choice of issues seemed to suggest, *studying the “harnessing of complexity” is compatible not only with CA-critical, but also with OS-critical harnessing.*

I have just argued that a Frankfurt School perspective is not *per se* incompatible with complexity economics; can the same be said of neuroscience and cognitive science? The challenge now is how to integrate these various emancipatory aspirations into a conception of rational agency that doesn’t simply neglect all the more recent insights from neuroscience.

From “spontaneous consciousness” to “conscious spontaneity”

The agent as social critic

At least from Kant onwards, the distinction between the knowing subject and the knowable object(s) has become increasingly blurred. This has reached the point where, in modern cognitive science, the alleged subject (“I,” the brain) becomes his own object whereas, in critical sociology, the alleged object (“society”) becomes a specific kind of active subject. This blurring of the borders between subjects of knowledge and objects of knowledge is closely connected with two conceptual landmarks which we already encountered in the previous chapter. On the one hand, there was the historical emergence of Invisible-Hand explanations of socioeconomic phenomena. On the other hand, there was the critique of the individual impotence which these explanations presuppose, and even require.

Invisible-Hand approaches have traditionally required their agents to be mere adaptive objects. (Remember our discussion of “subjecticide” at the end of Chapter 3.) Critics of these approaches have traditionally put forward the reverse idea, namely a society that is a (holistic) subject. As an illustration of this duality, consider Horkheimer’s striking parallel between Kant’s incomplete transcendentalism and the Hayekian attempt to posit individuals as ignorant of the overall social forces shaping their lives:

The difficulty and obscurity which, by Kant’s own admission, mark the sections [of his book that deal with] the deduction and schematism of the pure concepts of understanding may be connected with the fact that Kant imagines the supra-individual activity, of which the individual is unaware, only in the idealist form of a consciousness-in-itself, that is a purely intellectual source [i.e., the transcendental subject]. In accordance with the theoretical vision available in his day, he does not see reality as product of a society’s work, work which taken as a whole is chaotic, but at the individual level is purposeful. [. . .] The activity of society thus appears to be a transcendental power, that is, the sum-total of spiritual factors. However, Kant’s claim that its reality is sunk in obscurity, [i.e.,] that it is irrational despite all its rationality, is not without its kernel of truth. The bourgeois type of economy, despite all the ingenuity of the competing individuals within it, is not governed by any plan; it is not consciously directed to a general goal; the life of society as a whole proceeds from this economy only at the cost of excessive friction, in a stunted form, and almost, as it were, accidentally. (Horkheimer 1937a: 203, italics added)

For Horkheimer, the aim of Critical Theory is to round out this incomplete project by integrating into rationality the agents’ reflection on the overall “frictions” of their industrial market society. These frictions are becoming reified, *in the individual’s unreflected experience*, into certain economic mechanisms that take on the guise of fateful, inevitable forces. To overcome this “tragic knowledge” (as Christoph Menke [1996] has termed it) and to move toward a constructive critique is the very aim of the Frankfurt School’s theoretical efforts.

As we know, to a Hayekian mind these efforts are ultimately quixotic. The very “fatefulness” of the emergent economic phenomena, when viewed from the individual’s perspective, is precisely what allows the *autonomy of the social* so dearly required in a free society (Dupuy 1992a: 27–48). Nevertheless, we do and always will experience profound dissatisfaction or even revolt in the face of certain unmastered social forces. Such dissatisfaction is with our own, concretely lived position as abstract agents in a concrete economic order that ignores us. This revolt is what drives the “critical impulse” in the first place. Hayek’s deep error—and here I side decidedly with Horkheimer and Adorno—is to have confused the level of scientific

explanation with the level of lived experience. As we will see in a moment, the theorist can never simply denigrate the concrete, embodied experience of dissatisfaction or revolt. There is a *primacy of experience*, and some strands of contemporary cognitive science have done much to show this.

Our experience is not just a counterpart of social mechanisms, a “collateral damage” of sorts. It may *itself* be a product and a trigger of social interactions. And—Hayek notwithstanding—some experiences of *collective action* do show that allegedly fateful mechanisms *can* be modified, sometimes even deeply. As I argued in Chapter 2, revolutions do occur and when they do, this means people have experienced deep changes in their cognitive structures: they have experienced suffering and have been induced to *reflexively reject* the causal mechanisms in which that experience was rooted. What the Frankfurt School objects to Hayek is not complexity or emergence *per se*, but the individual’s cognitive impotence that goes along with his particular brand of emergence. They feel Hayek is using the Invisible Hand simply to legitimize capitalist alienation and exploitation:

The insights into society as a totality [. . .] imply that all moments which concur to this totality, and which are in no way reducible to one another, must be integrated into knowledge; the latter must not let itself become terrorized by the scientific division of labor. The priority of the social entity over the human individual can be explained by that very impotence of the individual in the face of society [. . .] The *reductio ad hominem* which inspires all of critical enlightenment has as its subject matter that human being which a self-mastering society has yet to produce.
(Adorno 1962: 563 and 565)

Clearly, if we want to avoid that the “self-mastering society” be of the totalitarian variety, that *self-mastery* must be of a *self-organizing* kind. In other words, collective mastery of economic phenomena must be an emergent property of the economic system, hence of the interactions of the individuals. The crucial question is whether Hayek is not ill-guided when, in addition to self-organizing interaction, he postulates the necessity for the “knowledge” used by individuals to be merely the “very important but unorganized knowledge [. . .] of the particular circumstances of time and place” (Hayek 1945b: 80). I claim he is indeed misguided in that respect.

So, whether his experience is “empirically observable” or not, the individual agent is *de facto* a social critic as soon as she reflects on her socially lived experiences and integrates them into a critical description of the economy’s mechanisms as she experiences them. As we saw in Chapter 4, Hayek himself did allow, following “the great writers of the eighteenth century,” that an individual’s “self” might well include “anything for which people in fact did care” (Hayek 1945a: 13). *So why should “what I care for” not include my own aspirations to a better society—whether CA-critical or OS-critical?*

But isn't there a division of labor in the economy? It is true that classical accounts of "the social critic," such as those of Michael Walzer (1987, 1988) which I discussed in Chapter 5, have a bias toward the critical *intellectual* as opposed to the critical *citizen*. So does the Frankfurt School. That bias may be understandable in the sense that we often see intellectuals—writers, academics, and so on—and intellectuals often see themselves, as a privileged channel through which critical theories about existing society can be elaborated and disseminated. However, the intellectual's role as a kind of crucial "node" in the social network does not get him very far if he cannot account for the fact that some or all other "nodes" are actually going to *receive and assimilate* the flows of ideas which originate at the crucial "nodes."

Ultimately, there can be no essential difference between those who started out as critics and those who didn't. It is a transitory difference attesting to one of the Enlightenment's most enduring postulates: the fundamentally equal capacity of all individuals to develop and cultivate critical reasoning. "What ordinary people do to achieve coherence does not greatly differ in main outline from what scientists do in their scientific work" (Lindblom 1990: 40). Although a very alienating economy (such as ours today) may contain a very small number of critical intellectuals and a very large quantity of uncritical agents, in a genuinely liberating economy all agents are critical. If they have lucidly chosen not to devote time and resources to studying critical descriptions of the economy, they will have done so freely and not out of a need to conform with the current constraints imposed by the economy's functioning. In other words, in a liberating economy, even uncritical agents are "critically uncritical."

Therefore, we have to view agents' critical rationality as being itself both the result and the stimulator of social interconnectedness. Walzer in fact uses social-network vocabulary when he describes how the common man becomes part of "the company of critics":

Disappointment is one of the most common motives for criticism. We have an idea about how institutions ought to function or how people ought to behave. And then something happens, the authorities act with the usual brutality; or something doesn't happen, the people are passive and indifferent; and we feel ourselves thrust into the company of social critics. It takes some further motivation, though, actually to join the company and stick to the critical enterprise. Disappointment isn't enough. Nor does a disinterested desire for the well-being of humanity seem a sufficient motive. A moral tie to the agents or the victims of brutality and indifference is more likely to serve. We feel responsible for, we identify with particular men and women. Injustice is done in my name, or it is done to my people, and I must speak out against it. Now criticism follows from connection.

(Walzer 1988: 22–3)

The fundamental thrust of everyday-life social criticism, or what Walzer calls “connected criticism,” is therefore a subtle and individually specific mixture of solidaristic identification (Arnsperger and Varoufakis 2003) and emotional involvement (Livet 2003), triggered by the concrete experience of disappointment.

None of these categories even get near to a Popperian ideal of scientificity. A critical description of the economy designed for the threefold exercise of normative, theoretical, and practical judgment will quite often be unfalsifiable. It might make use of “utopian” concepts built up in protest of current social conditions, though unobservable given these conditions. But why should that deter the individual from cultivating critical instrumental rationality? Why should the fact that his theory is (for now) unfalsifiable stop him from continually reflecting on what is wrong today, on what would be better, and on what would be the best means to effect an improvement? *If it is part of the current contradictions or “frictions” of industrial market society that individuals elaborate unscientific and utopian critical theories, on what “scientific” grounds can anyone tell them they are wrong?* As Geuss puts it,

Agents can act in ways that are more or less enlightened; the freedom of communication and discussion they enjoy and their freedom to form and acquire beliefs and preferences is a matter of degree; agents can be more or less reflexive. To what extent a critical theory is enlightening and emancipatory may then equally be a matter of degree. If rational argumentation can lead to the conclusion that a critical theory represents the most advanced position of consciousness available to us in our given historical situation, why the obsession with whether or not we may call it “true”? This is not a form of the relativism the members of the Frankfurt School rightly reject. If it is closer to Adorno’s historicism than to Habermas’s recent views about the “ideal speech situation,” that seems to me to be an advantage: the critical theory is better off without the transcendental baggage. If a critical theory is not a true “scientific” theory, not a part of empirical social *science* strictly so called, we might think of it as part of the wider enterprise of social theory or social philosophy. Not all empirical social inquiry must have the structure of critical theory, but the construction of an empirically informed critical theory of society might be a legitimate and rational human aspiration.

(Geuss 1981: 94–5)

This strongly echoes an important point made by Charles Taylor about the role of theories. Theories in general don’t simply have explanatory uses. They also serve “to define common understandings, and hence to sustain or reform political practices, as well as serving on an individual level to help people orient themselves” (Taylor 1983: 107). Let’s call this function of theory the *self-definitory* function. Self-definitory theories, among which are

the critical theories held by “connected critics,” may but need not be scientific in Popper’s sense. That is Geuss’s main point.

Now, given what we have just said, we should rather phrase Geuss’s last sentence as follows: “... the construction of an empirically informed critical theory of society *is* a legitimate and rational aspiration of *each individual*.” There are two key aspects to this construction of an individual critical theory: (a) the individual’s concrete experience of what to criticize and (b) the interactive context within which this experience arises and becomes an object of reflection. Let’s turn to these aspects.

The “enacted” component of reflexive consciousness

How does an agent’s critical rationality get formed and how does it evolve? Walzer’s following formulation can put us on the right track:

The tasks of the critic [...] are [...] to question relentlessly the platitudes and myths of his society and to express the aspirations of his people [as he sees them, including his own; see Geuss (1981: 45–54)]. The second of these isn’t possible, obviously, unless the people actually have aspirations that reach beyond or clash with the social order in which they live. If the masses are entirely satisfied [...], then, the critic is left with the thankless task of criticizing their satisfaction, which he hopes to replace with his own unfulfilled aspirations, the products of detachment and solitary reflection. But why should anyone accept the replacement? And what can the critic do when it is refused? These are difficult questions for the critic-at-large, but they need not call into doubt the critical enterprise itself. Imagine a critic who isn’t detached, free-floating, or alienated. He understands himself instead as a social being, “a man of a certain region, a certain class, and a certain time” (Silone), critical of “his own world” (Bourne). His values, even his universal values, are first of all the values of a particular person, and they are shared with a particular set of other people: “average values” (Camus). [...] Though he starts with himself, he speaks in the first person plural. This is what we value and want, he says, and don’t yet have. This is how we mean to live and don’t yet live. We criticize our society just as we criticize our friends, on the assumption that the terms of the critique, the moral references, are common.

(Walzer 1988: 229–30)

The question as to how close critical rationality should be to either “detachment” or “average values” cannot be settled as easily as Walzer suggests. Not, that is, unless we want to throw social criticism directly back into the arms of Hayek’s narrowly construed cultural evolution where what is “average” is what has evolved as “average.” However, Walzer does convey one idea convincingly: *the cultivation of critical rationality is an embodied*

experience, a localized attempt to reach for universality within a social network. As a result, the critically rational agent's social world is not simply something that "informs" her brain of objective facts merely to be "processed" in order to obtain a neat "representation" of the world, its defects and its yet unexploited possibilities. Rather, without much of the "transcendental baggage" (Geuss) that Habermas would like us to carry along, we come to know both our social world and ourselves by acting in that world unknowingly at first. Our "self" is not so much the precondition as the result of what Varela and his colleagues call *enacted knowledge*. The notion of "enactment" is based on the recognition that

there are many ways that the world is—indeed even many different worlds of experience—depending on the structure of the being involved and the kinds of distinctions it is able to make. And even if we restrict our attention to human cognition, there are many various ways the world can be taken to be. This nonobjectivist (and at best also non-subjectivist) conviction is slowly growing in the study of cognition. [. . .] We propose as a name the term *enactive* to emphasize the growing conviction that cognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs.

(Varela *et al.* 1991: 9)

The history of which the authors speak here is the sequence of an individual's structural couplings with his environment. This occurs on the background of that individual's operational closure, i.e., of the internal coherence which makes the brain able to string together the various crises and ruptures of microidentities and microworlds, as repeated couplings and decouplings occur in sequence. Cognitively speaking, there is no fundamental distinction between a structural coupling with an object and a structural coupling with another human being, even though the content of the experiences and the nature of the flows of content and information will differ greatly. Thus, human-to-human interaction is an integral part of the "perturbing" or "irritating" experiences that contribute to each agent's enacted/embodyed knowledge of the social world. The authors suggest that this conception of cognition also modifies our conception of reflection:

What we are suggesting is a change in the nature of reflection from an abstract, disembodied activity to an embodied (mindful), open-ended reflection. By *embodied*, we mean reflection in which body and mind have been brought together. What this formulation intends to convey is that reflection is not just *on* experience, but reflection *is* a form of experience itself—and that reflective form of experience can be performed with mindfulness/awareness. When reflection is done in that way, we can cut

the chain of habitual thought patterns and preconceptions such that it can be an open-ended reflection, open to possibilities other than those contained in one's current representation of the life space.

(Varela *et al.* 1991: 27)

Thus, the precarious individual act of striking the balance between Hayekian “spontaneous consciousness” and Horkheimerian “conscious spontaneity,” so as to cultivate critical rationality, is in itself a component of the agent's social experience. In their brief discussion of social-exchange theory (Varela *et al.* 1991: 245–6), the authors indicate that one way in which individuals “open up” their ingrained—uncritically accepted or inherited—representations of their social contexts and of the goals they think they have to pursue within those contexts, is by solidaristic identification and emotional involvement. Interaction changes perception, which changes representation. So enacted knowledge of the dissatisfactions or revolts around us, and embodied participation in the interactions, are essential factors in the genesis of critical rationality. To the extent they are allowed by the functioning of the economy, they help us shape our self-definitory critical theories. (Needless to say, the selectively open quasi-monad of mainstream economics is not at all up to the task at hand. The model of Chapter 8 will take stock of this inadequacy.)

Brought together in this way, Critical Theory and enactive cognitivism offer a fairly radical renewal of cognitive science. They are not incompatible but, rather, complementary. They allow for an integration of social reflexivity into interactive spontaneity, and of social spontaneity into interactive reflection. In fact, the two cannot be separated: reflection *is* spontaneous and spontaneity *is* reflexive. The only time when we forget this is when we write down and teach atomistic models of the economy, in which agents are so idiotic that the economy can under no circumstance be called liberating.

As we will now see, recasting the interplay between individual rationality and emergent social wholes within the Frankfurt School framework makes for a progressive and dynamic research program in social science, one that will be pursued in Parts III and IV. But before we do this, we still need to establish some very important concepts linked to our search for a “Horkheimerian Invisible Hand.”

Toward a theory of self-criticizing systems

“Esprit Critique” as an emergent property

Interaction between critically rational agents can lead to paradoxical situations. This is because all n of them interact within a single prevailing system S while having as one of their objects of interaction theories about what their interactions should be like in any of several ideal systems S^*_k , where k is an element of $\{1, \dots, K\}$, with K the number of groups having distinct

ideals. Thus, for instance, in an industrial market society, several groups may enter into competition on the “market” for anti-competition ideals. Trotskyists, Left-wing anarchists, moderate advocates of a self-managed economy, neo-Romantics, etc., may all be scrambling for commercial space, well-selling publishers, and prime-time media niches so as to channel their critical ideas to the largest possible audience. Feminists militated for decades within a man-made world in which they had to play along, while at the same time being aware of how much dislike they felt for the prevailing patriarchal rules and practices. More generally, for any social mechanism $m(S)$ inherent in the structure of the prevailing system S (i.e., determined by its directed graph of social relations and the associated goals and motivations of individuals), there will be a set of groups using $m(S)$ while promoting anti- $m(S)$ ideals, hence ideas which judge S itself to be structurally undesirable. This seems paradoxical. The paradox vanishes, however, once we give up our implicit ideas about “social stability” and “social consensus” and come to understand such a system S as a *self-criticizing social system*.

The notion of a self-critical system is *not* holistic. In other words, the term “self” is used here as a reflexive pronoun that designates a redoubling of the same entity. In the same way, we call an organ or a tissue “self-repairing” without in any way lending it the qualities of a subject. A system whose members use its inherent mechanisms to criticize those very mechanisms, and hence the system itself, is a subjectless whole in the purest Hayekian fashion.

So much for the use of the word “self.” But can we, in addition, say that a system is *self-critical*? The question is whether we can avoid the functionalism and organicism of systems thinkers such as Niklas Luhmann. Can a complex adaptive system really admit internal criticism? Isn’t criticism from within functional in maintaining the system that’s being criticized? Isn’t an operationally closed entity immune to the effects of criticism? Luhmann’s intuitions cannot be brushed aside too quickly. Here is what he has to say about the role of criticism in a complex society:

With the increase in the complexity of society, all possibilities get used more heavily and in a more functionally specific way. It becomes less alarming that at the level of interaction contacts are interrupted, Christmas greetings are not answered, marriages dissolve, firms crumble. But that difference is connected with a more or less established equilibrium between what stops and what begins anew. Moreover, the structural instructions for reproduction become more specific, which makes them more fragile and more quickly obsolete. Both ways of reacting to higher complexity harbor their own conditions and their own problems. They seem not to be sufficient by themselves. Therefore, in parallel, the society’s immune system gets reinforced, too. It does not consist merely in a negative copy of the structures, nor merely in a “critical” awareness vis-à-vis the available, but rather in specific,

distinctive forms of the continuation of communication—in forms such that, for instance, situations generated through struggle and victory vary so much as to constantly make subsequent normalizations possible. Within the framework of this selective formation of dissent and conflict, the increased strength of positions of legally permitted refusal, as well as the articulation of unrest, critique and protest in the guise of social movements, have both become more significant. In traditional representations of social history, they are usually played out one against the other: on the one side, the political and economic complex of modern capitalism; on the other side, the correspondingly stimulated whole of social movements. It would be more theoretically sound to distinguish between the structure of expectations and the immune system. One would then certainly realize that, compared with all its historical ancestors, modern society has destabilized its structures and has greatly increased the [individual] ability to say “No.” It may then be less important to know whether this “No” gets articulated more from positions of legal strength or more in the context of social movements. Nowadays there is a tendency to try and reconcile these two perspectives in the figure of “civil disobedience.” Whatever the case may be, we have to ask ourselves how from that situation we can recapture the still necessary “Yes” to society.

(Luhmann 1984: 549–50)

This last question is no problem for self-criticizing social systems. All those who want to say “No” say it while provisionally saying “Yes” to the structures in which they are saying “No.” Through interaction, we precipitate the emergence of social forces we cannot foresee while at the same time lamenting them and attempting through interaction to overcome their detrimental effects through our critically-minded participation in them. So Luhmann’s downplaying of critical awareness seems to me a rather ideological stance. But it is motivated in large part by his earnest faith in functionalist systems theory. Thus, in a system whose internal coherence requires “immunity,” rather than mere homeostatic re-stabilization, saying “No” can only make sense if it actually *reinforces* one’s fundamental “Yes.” [Recall that this was also the basis for Heath and Potter’s (2004) somewhat hasty advocacy of competitive markets in Chapter 2.]

This neglects, however, all the attitudes that can be grouped under the heading of *critical acceptance*. Luhmann seems to minimize them. Recall Horkheimer’s characterization: “. . . the critical acceptance of the categories which rule social life contains simultaneously their condemnation” (Horkheimer 1937a: 208). Condemning a rule, or a whole social structure, doesn’t leave much room for contributing to its “immunity.” What would it have meant for feminists to condemn patriarchal structures while contributing (even unwittingly) to their immunization? I fear the Luhmannian answer is quite unambiguous: *They* would not have contributed to the

structures' immunization, but the male part of society would have reacted in self-defense, much like antibodies rushing to the site of an infection—and defend themselves they did! QED. Now, this is fair enough, but what does this tell us, other than that these heroic women's *critical rationality* led them to incur large sacrifices to their immediate interests out of commitment to a cause (see, for example, Sen 1977; Arnsperger and Varoufakis 2003)? In many cases, therefore, saying "Yes" to the currently prevailing social arrangement may mean nothing more than *staying* in it because one has nowhere else to go, so that "here and now" is the only place to root one's critically rational actions.

Still, despite the distaste one may feel toward Luhmann's conservative-sounding solutions, he is certainly right in worrying about the need to account for the social system's operational closure. Unless we are prepared, in the face of a proliferation of critical rationalities, to embrace the extreme microreductionist position that "there is no such thing as a society," and therefore to deny the need for closure, how does a self-criticizing complex system achieve operational closure? How does the structure of relations between the individuals in such a system give the system its internal coherence? The key is to be found in our earlier characterization of the three types of harnessing—opportunistic, CA-critical and OS-critical. The very term "harnessing" means that one starts from where one is located. And notice that, indeed, all three modes of harnessing, whether relying on a notion of freedom that is unreflected (opportunistic harnessing), reflected and intra-systemically coherent (CA-critical harnessing), or reflected and extra-systemically coherent (OS-harnessing), contain the expression "make use of (a) and (b)." It refers to the agent's *de facto* acceptance of the overall social structure. This acceptance can be uncritical, as in categories I and in some instances of category II(i), or critical, as in other instances of category II(i) and in category II(ii).

In the narrow Hayekian view with boundedly rational automata, markets are sufficient for the optimal use of knowledge in the economy. The only emergent property of the economy system is the vector of market prices or, more likely, the segmented distribution of price vectors depending on relative search intensities and other localized parameters. In my model with critical rational agents, *something much broader and significant than prices* emerges from their interactions and provides operational closure. What is it? Well, to put ourselves on the right track, we can start with this very Hayekian-sounding passage from Lindblom:

It seems reasonably clear [. . .] that probing of social problems requires the participation of vast numbers of people, most of whom bring significant though greatly limited competence to their inquiries, and many of whom bring educated and experienced competences to the task. Call such a state of affairs multiplism.

(Lindblom 1990: 233)

Of course, we need to adapt the content of this passage a little bit to our present framework. Here, agents interact on the basis of a specific form of “competence” and do a very specific kind of “probing.” Still, the overall direction of the statement is clear. Multiplism is called for because “probing of social problems *requires the participation of vast numbers of people.*” But why does it require this? Instead of fearing a resurgence of functionalism, we can make an immediate parallel with Hayek’s own argumentation. He insists that the market-price vector, also generated by the participation of vast numbers of people, is the best way of “communicating to [any agent] such further information *as he needs* to fit his decisions into the whole pattern of changes of the larger economic system” (Hayek 1945b: 84, italics added). So prices are *required* because, to orient herself in the economic sphere, each agent *needs* information that her immediate context doesn’t reveal. In the same way, the participation of vast numbers of people in social problem-solving *à la* Lindblom is *required* because, to orient himself in his everyday social life, each agent *needs* cognitive resources which his immediate context doesn’t make available to him. And by extension, the participation of vast numbers of people in criticizing the prevailing economy is *required* because, to orient himself in his critical endeavor, each agent *needs* reflexive and cognitive resources which his immediate context doesn’t make available to him.

If this is so, then what is the correspondent of the price vector? Here comes one of the central claims of this chapter. *In the same way as market prices are a key emergent property of a complex adaptive system of narrowly instrumentally rational individuals, a key emergent property of a complex adaptive system of critically rational individuals is the social system’s “Esprit Critique.”* This French expression, which is more suggestive than the English “critical spirit,” is not meant as a metaphor for some fuzzy or elusive spiritual entity. It is not a set of numerically measurable quantities such as prices. It nevertheless designates something quite definite, namely *the overall “normative atmosphere” of the society, which allows individuals to form their initial aspiration for a better society and to flesh out this desire with critical theories which change through contacts with other, similarly active individuals.*

With the appropriate adjustments, Hayek’s idea of cultural co-evolution can be transferred to this framework. What co-evolves are now not merely the rules and practices that make competitive market transactions viable, but the whole set of rules and practices (about which more below) which make *norm-regulated “transactions” in critical economic ideas* viable. This circulation of critical resources is, in fact, a crucial part of the Rule of Law. As it gets installed, the economy becomes increasingly emancipated *because its agents become increasingly cognitively empowered.* As a result, we will witness more and more individuals engaging in critical reflection—including on the market norms which are allegedly intangible in Hayek’s narrow theory of society. In other words, my present version of cultural evolution would give rise, over time, to an economy such as the one portrayed at the

end of Chapter 5: an economy of individuals who critically accept to play market games while actively seeking to subvert them.

In such an economy, the culturally evolved subsystem of the market and its associated regulations would no longer have any reason to be considered stable in all cases. It *might* remain stable, but only if all or a significant majority of individuals have embraced Hayek's specific critical theory of the economy. But why should a Hayekian market society remain forever "immune" (in Luhmann's sense) to critical experimentations on its margins and at its core, any more than communist societies were able to remain immune to critical aspirations? The scope of cultural evolution is therefore broadened significantly by the concept of *Esprit Critique*.

Let's now try to get some initial insight into what the dynamic process in such a society could be. (Chapters 8 and 9 will offer more precise formal elements.)

The complex dynamics of collective self-criticism

John Holland has characterized the difficulty linked to complex adaptive systems as follows:

[Complex adaptive systems are] systems composed of interacting agents described in terms of rules. These agents adapt by changing their rules as experience accumulates. In complex adaptive systems, a major part of the environment of any given adaptive agent consists of other adaptive agents, so that a portion of any agent's efforts at adaptation is spent adapting to other adaptive agents. This one feature is a major source of the complex temporal patterns that complex adaptive systems generate. (Holland 1995: 10)

Holland's point here is not affected if, instead of modeling the agents as automata applying "if/then" rules placed in hierarchical sequences, we model them as acting on enacted critical knowledge about the economy, acquired through interactions with other agents within an economy that generates an *Esprit Critique* which, as the unintended result of these interactions, changes over time.

"Adaptation" now also means something a bit more sophisticated than what Resnick (1994), Holland (1995), or Epstein and Axtell (1996) suggest in their respective *StarLogo*, *Echo*, and *Sugarscape* models. An "adaptive" agent is now someone who is being exposed to (a subset of) all coexisting "complexity-harnessing" options currently present in the society, whether opportunistic, CA-critical, or OS-critical, and who is modifying his own complexity-harnessing option as an effect of experience, persuasion, instilled fear, good argument, rhetoric, and so on. So all contacts of an individual *i* with another individual *j* can be understood, *at that level of explanation*, as "irritations" creating a momentary structural coupling

between i and j , through which i 's internal coherence is momentarily challenged, his microworld is altered, and his autonomously self-organizing cognitive capacities have to reorganize. As I indicated earlier, the problem is not so much adaptation *per se* as *uncritical* adaptation.

The process by which such critically rational individuals interact is the succession of vectors of individuals' critical economic theories, c_i ($i = 1, \dots, n$), inducing an aggregate *Esprit Critique* which, in turn, acts as a systemic constraint on the next vector of individual views, and so on. This process cannot be called "dialectical" in any sense approaching the Marxian materialist theory of history. What might arguably still be called "dialectical" is the way in which the individuals try to formulate to themselves the contradictions of their society. It is the way in which, through interaction and individual reflection, they seek to integrate what the economy "is not" into their critical opinions or theories on how the economy "is"—in short, the way in which they seek to "think dialectically" (Horkheimer 1937b: 181). Modeling individuals as dialectical thinkers doesn't imply that the emerging social dynamics will obey any macro-laws of dialectics. Saying so would involve a patent instance of the fallacy of composition, and in a complexity approach this must be avoided at all costs. "Dialectical" may be a description of individuals' internal cognitive and reflexive processes, impelled by certain culturally evolved and evolving forms of what Habermas (1965) generically calls "emancipatory interest." But it can't be used to describe the way these individuals organize their interactions, or of the way their interactions generate the overall dynamics of the system.

The final or long-term-equilibrium characteristics of an emancipated and empowered economy cannot be imposed *ex ante* on the process of critically driven interactions that leads to them. Consequently, classical-liberal notions of consensus in which everyone agrees on at least a class of emancipatory models (see Rescher 1993) won't do along the dynamic process. Neither will the Habermasian utopia of a public sphere transformed into an arena of "ideally free speech." The cognitive consonance conducive to consensus, as well as the absence of communicative distortions, have to be made part and parcel of what critically rational agents—in the long run, an increasing proportion of them—consider to be a liberating economy. So these regulative ideals themselves (consensus, ideally free speech) should offer individuals *criteria for the formulation of critical theories* rather than being postulated at the outset. If your personal critical theory makes you strive for consensus, you'll still have to enter the arena of disagreement and antagonism. If you strive for free speech, you'll still have to go through the phases of silencing some others and being silenced by some others. What will keep you going through these tensions and contradictions is your critical acceptance of them, and you won't be able to stand your ground if you don't have a critical theory that helps you make sense (through normative, theoretical, and practical judgment) of the contradictory reality you're immersed in.

Indeed, as history shows, most criteria of equity or symmetry such as the principle of the best argument or the notion of impartial evaluation were actually the by-product of historical *struggles for empowerment and emancipation*. From these struggles gradually emerged social norms in which authority was no longer blind and contemptuous, and in which “neutrality” was not merely identified with a minority’s self-preservation interests (see, for example, Eagleton 1984: 29–43). True enough, Habermas himself is not claiming that the regulative ideal of undistorted free speech is empirically satisfied at all times. It may in fact never be fully satisfied. But as a *regulative* ideal, it supposedly exercises an implicit authority even on those who momentarily benefit from distorted communication. Thus, it serves to “reveal” the contradiction in their position, almost like a logical law. But *how* does it fulfill this function? Surely an exploitative CEO or an unbending union leader will never experience his position as “contradictory” unless, at some point, this is revealed to him *by some critically rational individual(s) acting as an “irritation” to this CEO’s or this union leader’s otherwise self-enclosed cognitive structure*. In case of the CEO, the “irritation” may come from a critically rational Marxist; in case of the union leader, it is likely to come from a critically rational Hayekian. And this can occur only in a process in which all, or at least most, individuals interact directly or indirectly in their respective bouts to present to others what they conceive as the right way to “judge the so-called free world by its own concept of itself, to take a critical attitude towards it and yet to stand by its ideas” (Horkheimer 1968: ix). In short, a process of interaction between individuals who critically accept the economy in which they are interacting, and who have spent time and resources shaping their critical description (whether Marxist or neoliberal) of the economy.

If *along that process* we give up the ideals of consensus and undistorted communication, we are left with either the notion of *modus vivendi* or the notion of compromise. The Hobbesian overtones of *modus vivendi* make it unfit for a society in which the emergent property is not a Leviathan but an *Esprit Critique*. In fact, the latter allows us to analyze rational compromise as any situation in which individuals endowed with critical rationality “agree to disagree.” This particular agreement doesn’t mean these agents gloss over their diverging critical aspirations to empowerment and emancipation. Rather, they agree to suspend overt conflict so as to leave open future arenas for critical “friction.” (For a more detailed discussion of this crucial figure of compromise, see Arnsperger and Picavet 2004.)

In an atomistic market economy prices serve as guides for the uncritical agents’ subsequent decisions. In the economy of critical agents I am discussing here the *Esprit Critique* serves as a guide to the agents’ subsequent decisions on how to revise their critical theories. The *Esprit Critique* is, to speak in Hayekian terms, a “summary” of the overall critical atmosphere currently prevailing in the economy. A predominantly Marxist *Esprit*

Critique might, for instance, make it less likely (but never completely impossible) for an individual to *suddenly* become a free-market zealot.

A reader of a more Hobbesian persuasion might object that in my notion of rational compromise, I have understated the more instrumental aspect of critical rationality. If taken at face value, so the argument goes, the exercise of critical rationality will almost certainly lead to a social dynamics in which agents, seeking to deploy means to reach their ideals, soon become deadly enemies. Their respective means–ends calculations, oriented though they are by society-scale ideals rather than by mere adaptive self-preservation, will soon clash into each other. Frustrations will sear.

My reply to this objection is the following. The same objection could be—and has been, often by misguided critics—raised against Hayek’s “free”-market model. In an economy where individuals seek to maximize their utility or their profit, instrumental calculations could soon lead them to eliminate their competitors, or even to kill them if they could get away with it. At the very least, they would find it “adaptively optimal” to cheat on them and on their customers, and so on. In other words, won’t the Hayekian “market order” soon self-destruct? The Hayekian answer is well known. We have already encountered it when discussing Paul Seabright’s (2004) position at the end of Chapter 3. The cultural co-evolution of norms, rules and laws makes destructive behavior suboptimal *in the very interest of instrumental calculation, viewed in the longer term*. This is the famous “general business climate” so closely monitored by Wall Street newspapers and International Monetary Fund functionaries. Since my aim is to follow in Hayek’s footsteps and construct a bottom-up Critical Theory, I can invoke a similar argument for my society of critically rational agents. The argument can be gotten in large part from an idea voiced by Horkheimer, my other guide in the search for a bottom-up Critical Theory:

The idea of self-preservation, the principle which is driving [instrumental] reason to madness [because it causes violence etc.], is the very idea that can save [critical] reason from the same fate. Applied to concrete reality, this means that only a definition of the objective goals of society that includes the purpose of self-preservation of the subject, the respect for individual life, deserves to be called objective.

(Horkheimer 1946: 175).

Therefore, an ethos of non-consensual but non-violent compromise is obviously at the heart of a rational society. A liberating society of critically rational agents should co-evolve institutions, regulations, rules, and norms which ensure that the “agreement to disagree” will be sustainable without a self-destruction of the *Esprit Critique*. This should imply a self-restriction of all critical theories in circulation, ensuring at least (a) the self-preservation of all agents and (b) the continued capacity for all agents to act

purposefully on their own critical theories, except if this implies that some other agents will not be able to do the same. One of the implications is that *no description of the economy could be called “legitimately critical” if the alternative economy it champions is inherently self-realizing (if, for example, part of the means allowed for by the critical theory consist in killing or otherwise incapacitating opponents).*

Some Hayekians might sneer at this proposition because it seems to them “obviously unrealistic,” i.e., too pluralistic. But then they should explain their own contradictory position. Why do they accept Hayek’s doctrine of cultural evolution for a *self-guiding* economic system of individuals endowed with *uncritical* instrumental rationality, but reject a structurally identical doctrine for a *self-criticizing* economic system of individuals endowed with *critical* instrumental rationality?

There is still one important question left open: what is the exact correspondent to Hayek’s market competition? If prices are the emergent property of a continuous process of (most probably non-Walrasian) competition, what is the *Esprit Critique* an emergent property of? To put it in a nutshell (again, recasting Hayek’s own intuitions about the rise of the competitive logic), *it is the emergent property of whatever methods of coordination a given set of critically rational agents will co-evolve along the process.* Suppose these individuals gradually end up interacting through competition in all realms, including the realm of critical ideas itself. This will be because the particular “alchemy” between the contents of their critical economic theories, and the way these contents have been made to interact (through teaching, writing, speaking, political deliberation, and other diffusion mechanisms), have gradually given rise to across-the-board competitive organization as a *conscious, reflexive compromise* between these individuals.

This means, however, that those who say that all social coordination is bound to evolve into competitive mechanisms rush to a foregone conclusion. It would be analogous to the *ex ante* affirmation of consensus or undistorted communication. (In fact, as I argued in Chapter 6, one can easily see that Habermas’s undistorted communication is the analog of a competitive mechanism, transferred into the realm of discursive interaction and driven by the criterion of the best argument.)

Herein lies, perhaps, the deepest difference between bottom-up Critical Theory and Hayek’s critical theory of a competitive-market (“catallactic”) society. *Rules and institutions which, in social evolutionism, are explained as the unintended emergent outcome of adaptation processes driven by self-preservation become, in bottom-up Critical Theory, the intended compromise outcome of “adaptation” processes driven by critically rational aspirations.* What remains an unintended emergent outcome of those same processes is the *Esprit Critique* of the society, which in a liberating society escapes—and should escape—the grasp of any individual or group of individuals.

A multiplicity of earnest perspectivists

Let me emphasize again that the key emergent property I call *Esprit Critique* is not a sort of Hegelian “Absolute Spirit” entity floating above the economic system and able to embrace it in one single gaze. Rather, the *Esprit Critique* of a self-criticizing economy is, like market prices in a market society, a parameter internalized by each individual in his own interactive quest for a better economic world.

The *Esprit Critique* is in fact an “*Esprit de Critique*.” Through her experience, her inferences from it, and from other people’s experiences, her readings, and so on, each individual *de facto* posits herself as a critical observer of economic reality. But the way she goes about shaping her observation is systemically constrained by her society’s *Esprit Critique*. Just as in a well-regulated market society you can’t charge a price different from the prevailing market price, in a well-regulated self-criticizing economy you can’t interact with other critically minded fellow individuals in ways that violate the prevailing *Esprit Critique*.

But isn’t it perilous to say that the economic system “observes itself”? Can a system be self-observing? Wouldn’t this imply that, hidden somewhere, is an All-Knowing Subject who can embrace the whole? Rephrased in terms of the present framework, the question becomes the following. What emerges from the interaction of all the critical economic theories is on a different level from the “sum-total” of these theories, but isn’t it the economic system’s own observation of itself? According to Luhmann, a system’s capacity for self-observation is directly connected to its operational closure:

A system can be observed from the standpoint of its environment, if the environment is able to organize and activate such a capacity, or it can be a self-observing system. This decision is central for the sociologist because we have the choice between seeing ourselves as external observers—such as when, for instance, we talk about the economy or about politics and do not intend to thereby make money or do politics—or as internal observers—which we cannot avoid when we do social theory. Indeed, as soon as we seek to communicate, we are already participating in society. Even social criticism, when it is analyzing society, has to draw the conclusion that it must always also include itself as one of the ongoing operations. Here [. . .] we need no third position, no position outside. [. . .] If we want to understand the self-observation of a system, we have to be able to adopt the viewpoint of the theologian who attempts to convey the belief in God in the name of God, or the viewpoint of the pedagogue who for obvious reasons has to defend the idea that at the end of the day, education will give good rather than bad results and that we ought to have the courage to trust in it. [. . .] In this distinction [between self-observation and external observation] it is difficult to see where we should put the subject. This classic figure

would in fact not allow that the subject be given a choice about whether to be inside the system it is describing or outside of it. The problems begin when we allow for an out-of-this-world, extramundane subject—is the transcendental subject outside of the world? [. . .] [If it were so, and] if we ourselves were to partake in this choice, we would have to face a difficulty: the observer has to operate and has to signify something, since it is hard to imagine how one can signify something from outside the world while making use of the distinction between world and non-world [. . .].

(Luhmann 2002: 151–2)

Deep logical problems would arise if we really attempted to make sense of an observer signifying objects in the world while being literally outside of the world. As Thomas Nagel (1986) has argued, even those who claim to be taking a “view from nowhere” are, at the moment they formulate that claim, standing *somewhere*.

This doesn’t imply, however, that anyone who attempts to say something about the whole economic system while obviously operating within that system is *necessarily* speaking “in the name of” that system, as if that were the only way for the system to observe itself. This may *sometimes* be the case, especially when the system one is speaking about is the eternal substantive totality of all totalities (such as the Spinozian “God”) or an abstract, all-encompassing concept (such as “education”). But what’s crucial when you adopt a *critical* viewpoint on the economy as a whole is that you’re establishing a connection between two distinct but interdependent things: on the one hand, the *current economy* as an object of enacted critical cognition and, on the other hand, the *future desired economy* as an object of struggle and compromise. Critically rational agents don’t claim to be merely “describing” or even merely “observing” the economy as it is—i.e., the economy as experienced by anyone who is currently “operating” in it. They claim the right to a *critically descriptive perspective* on the economy, which includes an anticipation of what the system could become. In such a way, these agents establish a “relation between rational intention and its realization” (Horkheimer 1937a: 217).

Just because *Esprit Critique* is the emergent property of such a set of critical descriptions of the economy doesn’t mean it constitutes the economic system’s “self-observation.” From the interaction between a set of selective, purposefully critical visions, an exhaustive bird’s-eye view can emerge only by chance. There is certainly no higher law of composition involved. Postulating the interaction of various critically rational agents, each of whom has a theory of the whole system, doesn’t entail the risk of a “view from nowhere.” A liberating economic system needn’t be “self-observing.” All that’s required, as we saw, is that it be *self-criticizing*.

So, leaving Hegelian schemes aside, what comes out of our discussion is rather the picture of an economy made up of earnest perspectivists. Each

individual carries in his mind what is, *to him*, the most adequate way of synthesizing his enacted knowledge about the economy so as to criticize the economy. And it is with the firm conviction that his perspective is *for now* the best that he enters into interaction with the critical experiences of the other individuals. The concrete economic process, then, is driven on by the earnest efforts of the individuals both to convey critical knowledge to others and to receive critical knowledge from the others. This is a process which, in some sense, is still “blind” *à la* Hayek. However, this “blindness” now coincides with the individuals’ sincere attempts to gain insight into what is wrong with their society and how it could be improved.

We have finally arrived at the concept of a “Horkheimerian Invisible Hand” we were looking for. It captures a crucial and necessary feature of any genuinely liberating economy. The rest of this book will be devoted to staking out the possibilities for economics to reform itself—both in the assumptions it makes and in the way it is taught—so as to conform to this concept.

To what real economy do we aspire?

Thus, in a genuinely liberating economy made of interacting, critically rational agents, the “real world” contains two sets of complex processes: on the one hand, those analyzed by mainstream complexity economics (the emergence of prices, flows, patterns, and so on); on the other hand, those specifically linked to additional dynamic tensions that arise out of the individuals’ exercise of their critical rationality (especially the emergence of *Esprit Critique*).

Obviously, these two sets of processes can be separated only in extremely special cases. Usually they are not. For instance, a Marxist agent and a Hayekian agent are very unlikely to follow the same rules of behavior *within the same imperfectly competitive market processes that make up their shared, concrete economic totality in today’s capitalism*. The Marxist laments the fact that he is currently living in a *market* society, and this may lead him to skew his choices and actions in a given direction. The Hayekian, on the contrary, is dissatisfied with living in an *imperfectly* competitive market economy, and this may lead him to skew his own choices and actions in another direction. As two earnest perspectivists, they face the same concrete reality from two irreconcilable perspectives. Their respective critical theories are different, and their shared critical acceptance of that reality makes them coexist (without trying to brutally eliminate each other) while at the same time acting in all ways possible to further their respective conception of an empowering and emancipating economy.

This makes the real economy a complex place on at least two counts. First, its interactive processes generate emergent phenomena due to *instrumental* adaptations in many areas of the economy. Second, there is one emergent phenomenon anchored in *non-instrumental* adaptation. Individuals “agree

to disagree” by striking precarious compromises which allow them to coexist while keeping their critical views radically distinct and trying to further their respective views through instrumental action within that contradictory, compromise-ridden society. Thus, they have uncompromising critical ideals but they pursue these ideals in a compromising way, including through attempts to entice others into their own ideals.

True enough, this duality may mean the eventual death, or the radical mutation, of some of the most traditional critical theories. Recent attempts to “recycle” Marxism (Van Parijs 1993) are, I believe, a symptom of this. Yet, the result is a complex adaptive economic system in which one of the crucial things individuals interact about is their critical stance toward prevailing economic arrangements. This is a real economy to which I think we can all aspire. It is what bottom-up Critical Theory offers.

Now, to recast the basic question posed in Chapter 2, can mainstream economics be transformed into a handmaiden for this optimistic perspective? Many would think not, given mainstream theory’s allegedly ingrained bias toward anonymous market interactions and self-interested, strategically adaptive individuals. Mainstream economics, we have argued earlier, has unwittingly become an *anti-critical* approach to social problem-solving. The next chapter, however, tries to suggest that this clear-cut assessment may no longer be quite as legitimate today as it was 10 or 20 years ago. While mainstream economics has by and large stopped being an emancipatory social science, some of the tools and concepts that have recently become available at the cutting edge of the discipline may be “reformable” in the direction outlined in the three past chapters. Part II of this book, which we are now concluding, might contain new avenues for complexity economics to be more critically oriented and more open to vistas of cognitive empowerment and economic emancipation. The concepts developed in Chapters 6 and 7 might perhaps offer mainstream economists the first inklings of a way out of its limitations. This is what Part III now attempts to do. As we will also see, however, the “price” to pay for mainstream economics’ entry into bottom-up Critical Theory will be that our whole conception of the role economists should play, and of how economics should be taught, in a liberating economy will be overturned. This is what Part IV will discuss.

Part III

Toward a critical mainstream?

8 A formal approach to critically rational action

This chapter investigates the possibility of embedding critically rational agents into mainstream economics by way of the recently developed “complexity vision” (Colander 2000). My hope is that, by demonstrating how critical rationality can be used in complexity economics, I can suggest a use of economic tools that will allow economists to become what they should always have been—namely, promoters of a genuinely liberating, cognitively empowering economy. Using such notions as “critical acceptance” and “critical description” mainstream economics, I want to argue, can become a normative discipline without losing its dignity as a positive discipline. It can regain the emancipatory impetus which, in the eighteenth century, allowed Hume and Smith to liberate people’s bodies and minds from cultural and religious oppression. The path to cognitive empowerment of agents didn’t stop at the beginning of the nineteenth century. We saw in Chapters 2 and 3 that mainstream economics is unduly focusing on an antiquated, and even outdated, emancipatory ideal rooted in the bourgeois critique of pre-bourgeois society. My hope is that the material of this chapter might jar economists into a new awareness of their missing role as social critics. This is a role they can only meaningfully occupy if they endow the agents they model with the reflexive and cognitive capacity for social criticism which they aim to develop as theorists. As we will then see in Part IV, this will have deep implications for the way research in economics is carried out and for the ways economics *as a plural field of social reflection* is to be taught. In a sense, in order to fit coherently into the economy it studies, mainstream economics will have to give up its claim to being the “only necessary” language in which critical descriptions of the economy can be couched. For the time being, however, let’s concentrate on how to characterize this coherent fit.

Why normative economics needs other foundations

From Vienna back to Frankfurt, via Santa Fe

I want to argue that one important way in which normative economics can be made more fruitful is by breaking away from models in which the

axioms used to assess the economic context are supplied from the top down by an external theorist. Normative economics should model the interacting agents themselves (one of whom might be the theorist, now no longer external) as harboring reflexively critical knowledge on—i.e., critical descriptions of—the economy in which they are interacting and as using that critical knowledge to act rationally toward furthering a better economy.

The implicit politology of mainstream normative economics

In principle, agents' normative aspirations and representations are no obstacle to a "positive" economic science. Under methodological individualism, three conditions are necessary (though often not sufficient) to ensure the positive character of any theory:

- 1 (a) The normative conceptions of agents, (b) the way they have formed over time, and (c) the various ways in which interaction transforms them (preference formation, cognitive learning, etc.) are viewed as hard facts.
- 2 One of the things about which individuals form normative conceptions are the interaction structures within which they are, and/or could like to be, embedded.
- 3 Among these interaction structures are the modes of interactive transformation of the agents' normative conceptions, mentioned as (1c) above.

If these three conditions are satisfied you can either conceive of the axiom-producing theorists as a specific class of agents to be modeled, or make "normative production" an activity of all the agents. This allows you to reduce any "normative" theory—among which, normative economics—to a "positive" theory of *normatively guided inter-individual interactions*. In that perspective, Marc Fleurbaey's discussion of axiomatic theories of economic justice highlights something important. He goes rather against the mainstream by writing that the work of normative economists, namely "logical analysis (study of the mutual compatibility of the axioms) and/or economic analysis (study of the existence of allocations, or of the non-emptiness of allocation rules)" is work that "also fits into the realm of the positive, not the normative, even though it still does not, or does not essentially, concern itself with the causal explanation of observed phenomena" (Fleurbaey 1995b: 4). He is saying, in essence, that just because the axioms are normative expressions of desirable allocation rules doesn't mean the theory that uses them isn't a positive theory.

The way Fleurbaey justifies this view, however, seems problematic. It reveals the conception of the agents' degree of empowerment that underlies of much of mainstream normative economics:

Thus, the normative dimension is located upstream from economic theories of justice, at the level of the choice of moral values (or, possibly, of the choice of philosophical theories) that inspire the criteria one studies. This choice is the true domain of the political sphere (in the broad sense). In reality, in a society which is sufficiently homogeneous culturally and ideologically, there is frequently a broad consensus about the values that ought to inspire the elaboration of criteria of socio-economic justice. Thus, the normative dimension of the debates frequently amounts to very little and leaves most of the space to the analysis of how to derive axioms from the values, and how to derive criteria from the axioms.

(Fleurbaey 1995b: 5)

This passage starts very well. Then, suddenly—with “In reality . . .”—it sweeps crucial problems under the carpet. It restricts the domain of mainstream normative economics to culturally and ideologically homogeneous societies. This is a pretty strong retreat from Fleurbaey’s initial claim that normative economics is really positive. In fact, conflating the two as he does implies the *normative* criteria whose technical implementation mainstream normative economics studies are made *positive* by ideological homogenization. As a result, by its implicit structure, normative economics is really (independently of the modeler’s deeper intentions) the technocratic handmaiden of a conventional social order. In a communist society where everyone is a communist, how does the economist express the underlying shared values and study their implementability? In an industrial-market society where everyone believes in the virtues of competition, in flexibility, and so on, with perhaps a bit of egalitarianism thrown in for social-democratic good measure, how does the economist express the underlying shared values and study their implementability? This is indeed positive theorizing. However, it falls prey to the defect which according to Abba Lerner, in a statement I have already quoted earlier, characterizes all of mainstream economics: “Economics has gained the title Queen of the Social Sciences by choosing solved political problems as its domain” (quoted in Bowles 2004: 1).

There are really just two ways to ground the axiomatic approach of current normative economics, as Fleurbaey has candidly described it:

- *The paternalistic-aristocratic view*: The economist is a standing partner of the ruling class (sovereign, government, parliament, etc.) in the effort to channel myopic or ignorant individuals into “socially optimal” situations. Socially optimal, that is, from the ruler’s viewpoint, informed by the economist as impartial spectator.
- *The unanimistic-technocratic view*: The axioms formalized by the economist are simply a recapitulation and clarification of the society’s already evolved, hence pre-established norms and values. The economist’s

task is simply to tell “us” how “we” could optimally implement them, where “optimality” itself is part of the values axiomatized.

The second view, not the first, is defended by Fleurbaey. For practical purposes, however, they are difficult to keep apart. We had perhaps better view them as two facets of a *single* view of the social world and its political dimensions. The reason is that in both instances the agents, apart from the theorist and possibly the “rulers” or “administrators,” play *no critically reflexive role* in the axioms’ evolutionary genesis (how did the underlying values arise, and how did they become what they are?) and in their current argumentative establishment (what compels the populace to subscribe to these values rather than others?).

So it turns out that the single overarching principle that unites the paternalistic-aristocratic and the unanimistic-technocratic views is point 1 above, combined with the assumption of cultural and ideological homogeneity. The agents’ normative representations are taken to be “facts” because this is required for a positive theory. Points 2 and 3, however, are evacuated. It is supposed that all agents subscribe to the axioms, but they don’t derive them from within an interactive, reflexive deliberation about the economy they want. They also don’t reflect on how they would like their normative representations formed.

Complexity economics with critical rationality

In this chapter, I’d like to suggest that we should take Fleurbaey’s suggestion all the way to its ultimate implications. Doing so will imply a different epistemic grounding for normative economics. Instead of getting caught up in strong assumptions about *ex ante* homogeneity and instead of assuming a deep *ex ante* divide between the economist and “the mass of people,” we will have an approach that replaces *normative* economics as practiced now by a *reflexive* theory of *normatively motivated* interactions between economic agents. Notice I use the term “reflexive” instead of “positive.” This is to indicate that such a modified normative economics has to include reflection by the theorist on what reflexive rationality implies, i.e., on the consequences of allowing model-agents to rationally choose their rationality.

The capacity of critically rational agents to choose their own criteria for rational action may become blunted and near-imperceptible in certain oppressive or otherwise alienating social contexts, but that is no reason to assume it away in our models. Unless, that is, we want to add to Fleurbaey’s *homogenization assumption*, which reifies social homogeneity into “how society is,” a *non-reflexivity assumption*, which reifies ignorance or indifference into “how people are.” Under these two assumptions, the economy we end up studying with our assumptions and axioms is a deeply alienating one. I view a liberating economy as endowed with what I will call a set of *characteristic emergents* which characterize the particular way(s) in which it

is a “liberating” economy. In Hayek’s free-market approach, the main characteristic emergent is market price, which both (a) emerges unchecked from all inter-individual interactions (search, matching, and so on) and (b) is fed back into individuals’ interactive decision problems. However, unless we want to condone non-reflexivity as the “best” way to be human—which I emphatically refuse—we have to envisage other characteristic emergents and other emergence contexts in an economy inhabited by critically rational agents.

This will allow us to deepen the epistemic foundations of “normative” economics to the point where it will have to be called instead *Critical Political Economy*. This will be a specific subdiscipline of economics that deals with the question of how to model a “critical mass” of agents interacting while each pursuing, as much as emergent constraints allow, his own critical conception of a better economy. The objective of this chapter is to show how this epistemically deepened normative economics might be constructed.

This chapter can be seen as an attempt to re-cast Chapters 3 and 4 in the light of what we learned in Chapters 5, 6, and 7. A simple formal model of interaction between critically rational agents will be discussed. The specific emergent phenomenon called the economy’s *Esprit Critique*, which we introduced in Chapter 7, and which is a crucial component of an economy geared towards social emancipation, will be defined in more formal terms. It will then be used in order to show how a “mass of critics” can emerge within a complex adaptive economic system. Finally, the problem of how to deepen the epistemic foundations of normative economics will be taken up in light of the preceding discussion. The normative/positive split will be seen to yield to what I would call *free-economy economics*, which is inextricably positive and normative. This will serve as the basis for Critical Political Economy.

The spread of critical ideas in complex economic systems

How Esprit Critique emerges out of critical rationality

There is a deep-seated assumption underlying current complexity economics, and which was already quite present in Hayek’s discussion of cultural evolution. It is that *imitation and conformity* are individually instrumental in the social process, both to reduce cognitive overflow and to survive by trying to mimic or copy the strategies or internal rules which, given how others act, seem to fetch a high credit attribution. This copying may be imperfect and error-prone (which introduces stochastic variation), but it is a key element in most complex adaptive systems. I want to suggest that all important social-learning mechanisms need not be imitative, and that in a genuinely liberating economy some crucial ones may actually be a mix of three non-imitative attitudes: *rational non-conformity*, *critical demystification* and *Socratic cohesiveness*. To make sense of these attitudes, let’s write down

a simple formal model. (Yes, I'm using some math! Keep in mind that my problem with the mainstream, in this book, isn't the use of formal modeling. It's the use of formal models in support of a representation of the economy as an atomistic, uncritical, "blindly groping" system, and the conception of the economic "scientist" that goes with along with it.)

A heuristic model of critically rational agency

Recall that bottom-up Critical Theory centers around two key insights. First, individuals are endowed with critical rationality. Second, a liberating economy is one in which the illusion of top-down control is relinquished in certain key areas and replaced by the lucid acceptance of emergence.

Let's begin by outlining a theory of critically instrumental rational action, which will mostly emphasize the "rational non-conformity" aspect. (Critical demystification and Socratic cohesiveness will be discussed a bit later.) Suppose, as before, the economy can be represented as a directed graph G . Take an agent i , identifiable as a node of G and endowed with preferences over socially produced outcomes. In mainstream economics, his preferences will be represented by a utility function U_i and, being concerned with socially produced outcomes, it will be affected by the agent's own actions, denoted by a vector a_i , and by the vector of vectors of actions of other individuals in some neighborhood n of agent i , denoted by a vector \mathbf{a}_n . Thus we have the usual notation for the agent's utility, namely $U_i(a_i, \mathbf{a}_n)$. This could be refined in the way suggested by Durlauf (2002: 54) by assuming that i makes a statistical error e_i when determining his action, and that what differentiates individual utility functions is a set of personal characteristics Z_i , so that

$$U_i(a_i, \mathbf{a}_n) = V(a_i, \mathbf{a}_n, Z_i, e_i). \quad (1)$$

This denotes the agent's non-reflexive utility, rooted in what we earlier called his "spontaneous consciousness" linked to optimal adaptation within the prevailing co-evolved norms. To take a simple and somewhat pedestrian example, suppose i is a consumer and one coordinate in a_i is his purchase of cream cupcakes. Being a Veblenian, "keeping-up-with-the-Joneses" kind of guy, he tends to eye at his dieting neighbors' consumption and to set his consumption level so as to optimally balance his craving for sweets and his urge not to appear too voracious. (Yes, in these times of dieting and slimness, conspicuous consumption can actually mean *counter-monotonic* preferences in cupcakes.) Although the Brock model postulates a to be a binary variable, and although Durlauf (1997: 100) has emphasized that continuous-choice versions of this same problem are still in their difficult infancy, this needn't concern me here because the point I want to make is at a different level.

The usual issue in these models is how the agents' statistical errors and their adaptive interactions on the basis of beliefs about each other's actions will generate a joint probability distribution for their actions (a_1 ,

a_2, \dots, a_N), where N is the total size of the neighborhood. My question, rather, is how i 's critical reflection on his social life can modify interactions in the neighborhood.

Indeed, suppose this man has, over time, developed a successful strategy of eating cupcakes while creating a neighborhood image of a fairly austere person. This may involve ostensibly exercising to burn away the calories, carrying certain expensive sporting clothes as “tags,” speaking about health and dieting with key neighbors, and so on. Suppose, now, that the neighbors suddenly observe i no longer coming to talk to them much, wearing simple, self-made clothes, and walking around the neighborhood with Marcuse's *One-Dimensional Man* conspicuously tucked under his arm. Clearly, given the general state of mind in the neighborhood, this is *not* an adaptively optimal strategy. Initially, it may well lead agent i to be questioned aggressively, or ignored and ostracized, or openly ridiculed. It is therefore irrational, if U_i is really i 's utility function. So why does he do it?

The answer is simple. For reasons linked to “critical demystification” and “Socratic cohesiveness,” which I'll spell out a bit later, he has added a term to his utility function. This term makes him want to participate in his current society's values and “adapted” actions very differently—namely, through critical acceptance instead of, as previously, through uncritical adaptation. He doesn't suddenly exit the industrial market society in which he is embedded, but he uses the market and the prevailing industrial mode of production to buy critical books and fair-trade cotton fabric instead of mass-produced cream cupcakes and expensive sporting gear. Thus (assuming additive separability for mere simplicity of exposition), we might now write his expanded utility function as

$$U_i(a_i, b_i, \mathbf{a}_n, \mathbf{b}_n) = V(a_i, \mathbf{a}_n, Z_i, e_i) + k_i W_i(d_i(S, S^*), b_i, \mathbf{b}_n),$$

$$k_i > 0, W_i(0, \dots) = 0, d_i(S, S) = 0 \text{ for all } S, \partial W_i / \partial d_i < 0, \partial W_i / \partial b_i > 0. \quad (2)$$

This represents the agent's reflexive utility, rooted in what we earlier called his “conscious spontaneity” linked to his reflected criticism of the prevailing co-evolved norms. The function d_i summarizes the agent's judgment as to the “distance” he is experiencing between the current economic system S and what he feels would be a better economic system, S^* . This latter variable can change over time because i might alter his critical description of S as time passes. The current state of the economy, on the other hand, is obviously the emergent property of the conjoined actions of all agents in the society: If M is the total population, we will have $S = S(a_1, a_2, \dots, a_M)$. If $d_i > 0$ and increases, agent i feels higher frustration and his “reflexive-utility” index W_i decreases. If $d_i = 0$, i.e., if $S = S^*$, there is no frustration at all and the second term of the utility function vanishes.

Since our agent is a critical rationalist interested in *acting on* his critical judgment, he is not content with merely *feeling* the frustration. He also

wants to *take concrete action* in order to improve the economy in the direction of his ideal. This is represented by action vector b_i , which denotes the means which i , upon enacted reflection and after critically minded interaction with other agents, views as appropriate to approach S^* . How good he will feel implementing these means obviously also depends on whether his neighbors are also acting so as to further the advent of S^* , as denoted by the vector \mathbf{b}_n . Thus we should actually write these variables as $b_i(S^*)$ and $\mathbf{b}_n(S^*)$. Clearly, if none of i 's neighbors are subscribing to the ideal S^* , or if none of them chooses to act towards that ideal, then $\mathbf{b}_n(S^*) = \mathbf{0}$.

We now have a straightforward way to explain the apparent irrationality of our agent's "non-adapted" behavior. One might have a simple step-function by which

$$\begin{aligned} k_i &= 0 \text{ for } d_i \leq \theta \\ k_i &= k > 0 \text{ for } d_i > \theta, \end{aligned} \quad (3)$$

where θ can be thought of as a "frustration threshold" above which the reflexive-utility component W_i starts kicking in. Suppose now that while possessing a fixed social ideal S^* (a simplifying but not a necessary assumption) i experiences that, over time, the conjunct actions $(a_{1,t}, a_{2,t}, \dots, a_{M,t})$ lead to a sequence of social states $\{S_t\}$ such that $d_i(S_t, S^*)$ increases over time, and at some point jumps the threshold θ . At that point it actually becomes *rational*, i.e., *U_T-maximizing but no longer V-maximizing*, for i to start taking actions b_i designed to hasten the arrival of S^* , both through changes in her own lifestyle and through a modification of the "tags" which she displays to other agents, in the hope that they too will be moved to react and will start promoting S^* .

Thus, actions b_i are based in part on i 's beliefs about how he can actively affect the functional form of the other agents' d -functions, and hence also k -functions, so as to make them feel the frustration earlier than if he had silently stopped buying cupcakes but had kept outwardly behaving in the same way. So, obviously, the fact that W_i kicks in modifies the whole profile of actions (b_i, a_i) , and this is not irrational. Indeed, the key to non-conformity in this approach is that what has proved adaptively optimal as a "best practice" over a long period may actually turn out to be what i believes must be *abandoned*—rather than reinforced—if $d_i(S, S^*)$ increases over time. The key mechanism by which a steady rise in d_i at some point puts k_i to a strictly positive value may be called i 's *social-criticism mechanism*.

Conscious disadaptation and subversive action

Critically rational people don't usually remain content with optimal adaptation to given interactions. They don't simply seek to maximize the cumulative net credit imputable to the agent's learning process. Rather, they also

reflect on those modes of interaction and credit attribution, as well as on the practically optimal ways of modifying them. Therefore, the whole of the agent's instrumental and computational capacities is not monopolized by adaptation *within modes*. At least some of these capacities are devoted to the adaptation *of modes*—i.e., paradoxically, to certain *consciously constructed disadaptations* with respect to prevailing modes. (Again, keep in mind that my problem with complexity economics, in this book, isn't the concept of adaptation *per se*. My problem is with the idea of a "critically blind" adaptation, and the conception that goes along with it concerning the economist's role in the economy.)

For instance, irrespective of the puzzlement his actions would cause to both the other agents and the theorist endowed with "common knowledge," the agent might suddenly decide at a given node of the game's extensive form that he will *not* perform the action which backward induction on the basis of a postulate of shared "rationality" would predict. Within critical rationality, this means *he will deliberately disadapt* by performing a CA-critical or an OS-critical act if, given his critical theory, he believes that his "deviant" action will so destabilize the common knowledge presumed by everyone that the modes of interaction and of credit attribution to actions might be put into question, and therefore put back up for grabs and perhaps altered in the medium or longer run, if not immediately.¹

To efficiently perform such a "deviant" act requires the agent to know just as much, and perhaps even more, about the prevailing complexity and to have just as much, if not more, instrumental abilities than if he were to opportunistically harness that complexity. Thus, what I'm discussing here is not simply romantic irrationalism or "expressive" rationality, but a type of rationality that makes use of the "self-definitory" quality of critical economic theories which Taylor emphasized in Chapter 7.

Rational non-conformity points to the way in which the agent constructs and elaborates his internal model *so as to no longer be an idiotic automaton*. The critically rational agent's internal model instructs her, in particular, to go through the process of interaction and—particularly by being attentive to her own and others' lived experiences of social success or suffering—to try to detect the *still virtual and not yet explicitly observable opportunities for social innovation*. Part of the agent's being critically rational is that *he desires to have such an internal model* because that is how he believes he will become cognitively empowered. So the agent (a) has a non-idiotic internal model and (b) has developed it because he desired to have it, because (c) this desire, too, is part of his critical rationality. As we saw in Chapters 2 and 3, features (a), (b), and (c) taken together mean that *he can never have been, and never again become, an idiotic automaton*.

On the basis of his critically oriented perception throughout the interactive process, the agent constructs actions which are optimal for him but which can look totally irrational within prevailing modes of interaction and/

or of credit attribution. In that sense, they are “instrumental” actions because they aim at a goal: conspicuous criticism. But this goal itself—“a better economy”—usually cannot be fully expressed in instrumental terms. Let me suggest two basic categories of such a subversive way of acting:

- *Moderately subversive aim:* This will usually correspond more to CA-critical action. The action aims to subvert the mode of credit attribution for the currently given mode of interaction. For example, the agent may start consuming more expensive but less polluting products to “preach by example,” therefore sacrificing in the short run part of the instrumental benefits he could derive from “mainstream” market interaction.
- *Radically subversive aim:* This will usually correspond more to OS-critical action. The individual action aims to subvert the mode of interaction itself, hence in most cases also the mode of credit attribution. For example, the agent may replicate Francis of Assisi’s “leper’s kiss,” or a capitalist shareholder may suddenly accept a self-managed structure for his firm, by which he loses his own status and many of his rights as an owner.

Within a complex adaptive system that contains such consciously disadapting agents, the “adaptation” criteria can still relatively easily be assimilated to an enlarged version of “evolutionary fitness.” A deviant action can be viewed as a mutation (in the sense of a “copying error” as defined by Axelrod and Cohen 2000: 39) which, although far from stochastic (since it is grounded in a reflected choice of a conscious agent who is informed by a critical theory), nevertheless remains rather unpredictable to those agents who continue following established modes of interaction and of credit attribution. The mode of credit attribution that will be used to assess the “success” of this action will, of course, not be the one which that action (if OS-critical) is seeking to subvert. Rather, success in subversion will tend to be measured by the degree to which the action has, after a certain number of periods, rendered self-validating the mode of attribution and/or interaction it was seeking to promote. In other words, the “fitness” of a deviant agent is measured by his ability to lead others, through their own adaptive moves, to adopt the concrete elements of normativity contained in the critical theory that initially motivated his deviant action. This means the agent impels others to realize that his critical description of the economy has reflexive appeal for them, too.

Note carefully that there is no *principled* anti-conformism involved in *i*’s behavior. He doesn’t disagree for the pleasure of disagreeing, but because his frustration with the distance he experiences between his actual life and his desired life is too strong. He is suffering within his critical acceptance of *S*, and this makes him seek out other agents with whom to share that experience of suffering and engage in action. If by chance *S* were to finally

converge on S^* , his non-conformity would vanish. Thus, what Adorno called the agent's "critical impulse" is not a permanent behavioral trait but only an occasionally triggered disposition. That doesn't mean he's no longer critically disposed when S and S^* have converged. As critical realism emphasizes, the triggering of his critical disposition is a matter of context. It might go untriggered for a long while, but the economy's workings shouldn't be such that it is forever extinguished. Indeed, as I have argued in Chapter 5, this critical disposition—embodied here in the "distance" function d_i and the "threshold" function θ —is a fundamental part of what makes agent i "recognizably human." The critically rational agent is not a rebellious, arrogant teenager who objects to everything and just *loves* to wallow in accusation and self-pity; but neither is he a blunted, mechanical adult who wishes he were a robot so he wouldn't suffer anymore.

Characteristic emergents

In this chapter I cannot hope to analyze the immensely complex dynamics which this model can generate when applied to a graph of M interacting nodes, each of them embedded in an N -neighborhood. What I am interested in, rather, is to discuss what I will call the system's "*characteristic emergents*."

Apart from the behavioral rules given by Equations (2) and (3), each agent i also uses a whole array of *interaction rules*. These have various aims: to acquire information about everyday-life aspects linked to "traditional" actions a_i ; to understand as clearly as possible how the actual society S_t works in order to draw up the social ideal $S_{i,t}^*$ as rigorously as possible, by communicating with others through reading, following lectures, seminars and conferences, and engaging in Socratic dialogue with like-minded, or opposed but talkative, neighbors; to reflect with like-minded others on the best means to approach their ideal in the current period; and so on. Of course, these interaction rules imply that along the path $\{S_t\}$, numerous institutions will emerge and evolve, among which are government, contracts, markets, gift exchange, gratuity, and so on. Let's suppose that these institutions, including those which assist the agents in forming their behavioral parameters, are not authoritarian planning institutions. Let's assume, in addition, that the necessary interactions are not strictly trivial (in the analytical sense of Koppel *et al.* 1983).

Then each momentary economy S_t will be characterized by an array E_t of emergent phenomena ($e^{a_1}, e^{b_2}, \dots, e^{z^{(t)}}_{R(t)}$). In this notation, room is made for the possibility that as society changes, the number—lower index (1, 2, \dots , R)—and types—upper index (a, b, \dots, z)—of these emergent phenomena might themselves change. E_t is the array of the *characteristic emergents* of the economic system at time t .

Of course, the frustration threshold θ may be infinite for all i . For all practical purposes, this means that all agents are, in all periods, in full agreement with the current economic system, so that $S^* = S$ and $d_i = 0$. But

if we discard this very particular case, a crucial characteristic of a liberating economy is that *interactions between critically rational agents, each seeking to understand what is right or wrong about their economy and how to either defend its successes or improve its defects, will be interactions subject only to self-generated norms and constraints.* As I argued in Chapter 7, these norms need not necessarily be those of “consensus” or “uncoerced free speech,” but they need to have emerged from the bottom up through the interaction of the agents and not have been imposed from the top down.

In other words, in a liberating economy understood as an economy inhabited by agents in search of cognitive empowerment, there is one emergent that’s linked specifically to *the self-organization of reflexively motivated interactions between critically rational agents.* Reaching back to Chapter 7, I call this particular emergent the *Esprit Critique* of the economy at time t and denote it as C_t .

At first, it might seem to be a strange and somewhat ethereal emergent. It might be seen as having some of the properties of a spiritual entity, “hovering” above the agents, so to speak, and acting as their “internal voice” that tells them when their utterances are in line with what others can accept (consensual exchange), when they are unacceptable but may be fruitful (constructive disadaptation), and when they are simply destructive of communication (frontal antagonism). *Esprit Critique* is not numerical or simply quantifiable (although we may be able to translate it into an array of Boolean variables as, for instance, in Axelrod’s (1997) model of diffusion of cultural traits), but it is nevertheless a solid concept.

To understand it, imagine an industrial market society in which, at time t , a certain proportion of agents are in a situation of critical acceptance. They play along in the market economy, but they feel its logic and structure are fundamentally flawed. So they act in non-standard ways, trying thereby to disseminate critical views about the market logic through writing, speaking out, and otherwise acting in visible ways “tagged” as “anti-market.” In such an economy, prices continue to serve as guides for the agents’ subsequent economic decisions, but in parallel there is an *Esprit Critique* which “summarizes” the overall critical atmosphere prevailing in the economy. It conveys to all involved that they are—whether they be critical or uncritical accepters—living in an economy where there is a tension between pro-market and anti-market views. This *Esprit Critique* clearly doesn’t prescribe a definite view on markets, but it serves as a rational guide to the agents’ subsequent decisions on how to revise their critical theories. For instance, they might start reflecting on their critical position of next period on the basis of *that* prevailing tension, rather than on the basis of other ideas left in the background in the present economy (such as an overarching acceptance of markets as “natural” that would forbid anyone from talking about non-market economies) or pre-eminent in other economies (such as a staunchly Marxist–Leninist *Esprit Critique* that would forbid even mentioning the virtues of a market).

With our two main elements in hand—critical rationality as a tool of rational non-conformity and *Esprit Critique* as a key characteristic emergent—we can already go a long way in characterizing the economics to be embedded in bottom-up Critical Theory. Clearly, these two elements will be central in the shaping of Critical Political Economy. Let's now add some further new elements and discuss in more detail the features of critical demystification and Socratic cohesiveness.

What do critically rational agents learn in interactions?

Basically, these two other features have to do with the agents' learning process. Both Bayesian and non-Bayesian economic theories of social learning make up a growing body of the mainstream literature (see, for example, Chamley 2004) and my aim here will not be to actually model the agents' interactions. However, some qualitative aspects can be discussed in the light of my simple heuristic model.

As I have emphasized in Chapters 6 and 7, agent i draws up his social ideal S^* by “standing” at a critical distance from the current social process S , while knowing he is in S and nowhere else. This requires that i gather a type of knowledge about the economy which I would call *critical knowledge*. Through critical economic knowledge, i comes to understand the current economy as it is from a certain critical viewpoint that doesn't claim to be a “positive” description. So i constructs his knowledge in such a way that he can understand *also* whether he wants to defend or change the economy as it is. We need not be Marxists to grasp this crucial idea:

Now, inasmuch as every individual in modern times has been required to make his own the purposes of society as a whole and to recognize these in society, there is the possibility that men would become aware of and concentrate their attention upon the path which the social work process has taken without any definite theory behind it, as a result of disparate forces interacting, and with the despair of the masses acting as a decisive factor at major turning points. Thought does not spin such a possibility out of itself but rather becomes aware of its own proper function. In the course of history men have come to know their own activity and thus to recognize the contradiction that marks their existence. The bourgeois economy was concerned that the individual should maintain the life of society by taking care of his own personal happiness. Such an economy has within it, however, a dynamism which results in a fantastic degree of power for some, such as reminds us of the old Asiatic dynasties, and in material and intellectual weakness for many others. The original fruitfulness of the bourgeois organization of the life process is thus transformed into a paralyzing barrenness, and men by their own toil keep in existence a reality which enslaves them in every degree. Yet, *as far as the role of experience is concerned*, there is a

difference between traditional and critical theory. The viewpoints which the latter derives from historical analysis as the goals of human activity, especially the idea of a reasonable organization of society that will meet the needs of the whole community, are immanent in human work but are not correctly grasped by individuals or by the common mind. A certain concern is also required if these tendencies are to be perceived and expressed.

(Horkheimer 1937a: 212–13, italics added)

Clearly, as emphasized in Chapters 6 and 7, a Hayekian approach to this kind of knowledge problem rejects the somewhat naive—and anti-complexity—idea that any social process could and should have “a definite theory behind it” without any “disparate forces interacting.” On the contrary, the fact that “every individual in modern times has been required to make his own the purposes of society as a whole and to recognize these in society,” which Horkheimer dislikes, can in fact be seen as an essential expression of a liberating economy. If, that is, we interpret “recognizing the purposes of society in one’s own purposes” along the lines of complexity theory: the economy’s characteristic emergents are necessarily fed back as systemic constraints into the further decisions of the agents.

The problem, then, is not how to assume away or institutionalize away complexity by imposing “a definite theory to be grasped by the common mind.” Rather, and here Horkheimer puts his finger on something crucial, the problem is how to organize economic institutions and the underlying interactions in such a way that “the role of experience” can be exploited in a genuinely fruitful way. And this can be done only if all possibilities for mutually beneficial exchanges of experience are exploited *under the auspices of critical rationality*. That is, the agents’ lived experiences have to be exchanged in such a way that all can “come to know their own activity and thus to recognize the contradiction that marks their existence.” This awareness of the contradictions of our existence may at first be even more painful than the experienced contradictions themselves. But eventually, it will impel the agents to question themselves to see whether they are indeed “keeping in existence a reality which enslaves them in every degree.” Since “thought does not spin such a possibility out of itself but rather becomes aware of its own proper function,” a level playing field must at all costs (almost!—more on this in Part IV) be created on which ideas can flow and be exchanged, including of course ideas hostile to free economic markets and unrestricted commercial flows.

Let’s be more precise about these “ideas.” The society’s *Esprit Critique* is the emergent phenomenon of what critically rational agents teach each other, and learn from each other, in their reflexively motivated interactions (e.g., purposeful critical discussions), as well as in their everyday interactions marked by specific “tags” making the *reflexive origin* of certain everyday actions tangible (the way you buy bread in a small bakery, the respect

you shows to an employee, the critical books you carry around, and so on). Underlying this network of circulating reflexive resources is *an array of critical theories, or critical descriptions of the economy*. Let me again denote them with double indices so as to allow for maximal dynamic flexibility: $(c^a_1, c^b_2, \dots, c^z(t)_{N(t)})$.

A critical theory can be written more explicitly as $c(S)$, in order to emphasize that it is a critical description of S . Each $c(S)$ is one way (a) of identifying the pros and cons of the current economic system S_t and (b) of pinpointing certain typical actions $\mathbf{b}(c)$ that could be undertaken so as to improve it, given an ideal system $S^*(c)$ that is conveyed explicitly or implicitly by the theory. It is these actions $\mathbf{b}(c)$ which induce the vectors b_i and \mathbf{b}_n in Equation (2). There is, however, no relationship of perfect logical deduction between $\mathbf{b}(c)$ and Equation (2). The reason is that, in between, there is the crucial filter of i 's subjective distance measure d_i and of his own "practical judgment" about what actions on his part and on the part of others would be appropriate. This practical judgment depends on how i "translates" the features of S that his critical theory describes into subversive or supportive actions, given what his description of S leads him to believe is feasible.

Here, then, is the stylized picture of what critically rational agents teach and learn in their interactions. Each i co-determines four things that will allow her to perform the threefold normative, theoretical, and practical judgment: her social ideal S^* , her subjectively experienced distance $d_i(S, S^*)$, the critical theory $c(S)$ which allows her to understand the objective reasons why S has the properties she is experiencing and to give a direction to her frustration by seeing how S^* could be approached from S . She co-determines these variables through an interactive process in which (a) she faces defenders of S and seeks to gather wisdom (explicative, for S and/or against S) from them by deliberately demystifying their deepest convictions and trying to understand their reactions; and (b) she encounters both defenders of S and denigrators of S in a global atmosphere of "cohesion" (more or less shy of "uncoerced free speech"), based on a shared desire to arrive at reasons either for "agreeing to agree" or for "agreeing to disagree."

Thus, the process involves both critical demystification (aspect (a)) and Socratic cohesiveness (aspect (b)). No critically rational agent takes anything for granted from the others. He even cynically opposes their views in order to make up his own mind about what S^* to adopt. None of the agents, however, seeks to destroy the other or to brutally transform S into S^* by some global act of authority, because all of them view each other as engaged in the same reflexive search for their ideal social world, and this gives them a paradoxical kind of "cohesion." In the end, at each period each agent i takes home a vector $(c(S), d_i[S, S^*(c)])$ which he uses as an elaborate internal model to carry out the maximization of (2) subject to (3). The actions flowing from this maximization then "join" the actions of all other agents to generate the economy's *Esprit Critique*.

The interaction also has to channel to each agent a credit attribution. The notion of “credit” underlying critically rational interactions is more difficult to define than in a non-self-criticizing complex adaptive system. This is because, as was highlighted earlier, an agent will not merely be attempting to mimic others’ high-credit rules and to avoid others’ low-credit rules. The actions (a_i, b_i) and the internal model (c, d_i, θ) on which they were based are evaluated by the agents in a much more complicated way. For instance, i ’s “success” may not coincide with a lot of agents $j \neq i$ having been converted or even made aware of i ’s options, but with certain key agents in i ’s neighborhood or in the society at large having adopted i ’s point of view. Significantly more work is called for if we want get a better understanding of credit attribution in complex adaptive systems with critically rational agents. I can only scratch the surface here.

But isn’t this model reintroducing the hyper-rational agents which complexity economists had wanted to get rid of? In a sense, it is; in another sense, it isn’t. The demands of “conscious spontaneity” are more stringent than the merely mechanical use of, say, “if-then” rules by a frog or by a human agent carrying out routinized activities in a constantly changing environment. However, the model suggested here is compatible with agents using simplified versions of the c -theory in “tagged” actions and reactions. This is the case when an individual is earmarked as a Marxist or as a neoliberal through some “emblematic” actions, reactions, or statements that don’t require the statement of the whole underlying critical theory but *could* be traced back to one such theory. A critically rational agent has to be articulate in the sense that if he is asked and if he has enough time, he is able to spell out the critical approach that explains his choices. But he can have habits and routines *traceable to that critical approach*. We could, for instance, define for each c a set of characteristic or typical actions $A(c)$ that are “emblematic” of c . What really matters is the way in which each such set translates into the value of d_i , and hence into the way (2) is maximized.

Will critically rational agents free ride in collective action?

In the vast majority of complex social systems, the deviant action of one individual will have little or no effect. Your isolated critically rational action is useless, unless you are Emperor Constantine, whose personal adoption of Christianity, so they say, triggered a system effect which saw that religion adopted as the official cult in the whole Roman empire, or unless you are a pop star so immensely popular that by personally condemning the greenhouse effect you trigger a massive “contagion” in favor of public transport. These are cases of nonlinearity due to the extreme salience of an agent. The vastly more usual case is that where the agent’s critical rationality is exercised within a *collective*. Because the model is interactive, the agent might herself have contributed to the emergence of that collective, and

it in turn might have deeply modified the content of the agent's critical rationality along the process of emergence.

In fact, since critical rationality has an instrumental component, the issue of collective supports for action will be *part and parcel of each individual agent's critical theory*. Thus, inside the agent's *c*-theory, there will be a normative ideal (corresponding to the phase of normative judgment) as well as a *systemic theory of feasible collective action with a view to attaining or approaching that ideal* (as part of the phases of theoretical and practical judgment). This second component of the agent's critical theory is a positive rather than a normative one, and it is directly connected to the theory of complex systems. It helps the agent formulate a mode of collective action as a function of any distribution of critical theories other than her own within the population. So if agent *i*'s critical theory is c_1 , if $\#(c_1)$ is the total number of agents who adhere to this theory (including *i* herself), and if there are $P-1$ other critical theories in the population, distributed according to a density D , then agent *i*'s *collective-action function* is $CA_i = f_i(D(c_2, \dots, c_P) \mid c_1, \#(c_1))$, where the transformation function $f_i(\cdot)$ represents *i*'s understanding of the prevailing social complexity, which is shaped in particular on the basis of her positive theory of the prevailing economy (which is part and parcel of her critical description of that economy). Thus, the complete internal cognitive model of a critically rational agent is $\{c(S), d[S, S^*(c)], \theta, CA\}$.

So an explicit account of collective-action resources is part and parcel of the agent's instrumental rationality. It now becomes possible to reassess the traditional mainstream arguments about how free riding could be limited or eliminated in collective action (Olson 1965; Buchanan 1979; Hardin 1982). These arguments are of course valid within the strict framework of standard models of non-critical rationality. Traditional collective-action theory attributes no critical posture to the agent. *At best* his cognitive model is $\{x(S)\}$, where "x" denotes a purely explicative theory of the economic system which the agent uses as one of the resources with which he opportunistically pursues his self-interest. And in most models, even this use of a general positive model of the economy is assumed away.

If the agents are really pursuing their own interests through the collective creation of a pure public good, how can we avoid free riding, if not by postulating a kind of "supplementary" rationality that, by some magical trick, would step in and mitigate or even annul the underlying Prisoners' Dilemma? It seems to me that in the present model, such arguments become less magical because, precisely, the "game" is being played from the start between a collective embodying a critical theory c_1 and other collectives embodying other critical theories (c_2, \dots, c_P). This changes the stakes of what goes on *within* each of the collectives.

Inside a given collective, the goal of the agents' joint actions is not merely to produce a pure public good. It is to implement means in order to

optimally diffuse the collective's critical theory in a population composed of many people who do not outright adhere to it. So the aim is to harness the existing social complexity in order to trigger a dissemination process favorable to the group's own ideal of a better society, $S^*(c)$. By that very token, as long as the system is not stationary there are bound to be agents "converting" from one collective into another. However, the fact that agent j abandons a critical theory c_k in favor of another critical theory c_h doesn't represent a "deviation" in the sense of non-cooperative game theory. Agent j merely switches from collective k to collective h , but in her new collective she will again participate in a collective action. The exact nature of this collective action will be inherently "dictated" by c_k . And this is a collective action unlikely to generate free riding if we assume that each agent adheres fully to his critical theory of the moment, whatever it is.

The mainstream economist will retort that this begs the question. Isn't it precisely this "full adhesion" that is missing in the case of free riding? If so, then postulating the cohesion of collectives to begin with skews the analysis in a direction of which Olson would disapprove. Indeed, here too there would be a gap between the cost of participating and the loss in case of non-provision of the "collective good." Wouldn't this gap impel j to leave the hard work of promoting and disseminating c_k to the others? Obviously, I cannot exclude this totally, except if I were to slip toward an idealist theory of critical rationality. That would mean succumbing to a kind of "critical-theory Kantianism." Short of that, non-deviation can never be completely ruled out. Nevertheless, there might be a possible analogy here with the argument of Hardin (1982) and Axelrod (1984), according to which repetition of the game increases the chances of non-deviation in the Prisoners' Dilemma. One could claim that the fact of having as a cognitive baggage $\{c(S), d[S, S^*(c)], \theta, CA\}$ instead of merely $\{x(S)\}$ allows to "root" participation more deeply within the agent's basic rationality. Remember Charles Taylor's argument that critical theories are often used by agents in their "self-definition." If so, then wanting to collectively promote c_k is much more part of the agent's identity than merely wanting to get his share of some public good (even if his decision to free-ride depends, in part, on some explicative theory x). Thus, in the case of collective action aimed at disseminating a critical theory of the economy, there is much less need for the "supplementary" kind of rationality which Olsonian analyses need to bring in to explain why opportunistic agents still cooperate. It seems to me that the Prisoners' Dilemma is more likely to bite when the agent's internal cognitive model is the non-instrumental ideal c_k than when this ideal is embedded into an "extended" internal model, $\{c(S), d[S, S^*(c)], \theta, CA\}$.

Thus, the "critical impulse" we discussed in Chapter 7 is apt to move critically rational agents in ways quite distinct from the selectively open quasi-monads we studied in Chapters 2 and 3. Contrary to their counterparts in mainstream theory, the agents of this model are endowed with a

whole array of reflexive and cognitive capacities that make them liable to be truly “caused” by a collective ideal and to pursue this “cause” with less schizophrenia than Olson’s unreflexive and uncritical instrumentalists.

Emergent properties and the “mass of critics”

As has already been emphasized repeatedly, critical rationality aims to somehow influence the realizations of the complex economic system. It never aims to eliminate the ongoing economy’s complexity because, in a liberating economy, it can’t. *The critically rational agent seeks first and foremost (through individual but mainly collective action) to alter the vector of characteristic emergents of the system in which the interactions are taking place, by attempting either to change the modes of credit attribution or the modes of interaction themselves.*

Through the orientation he gives to his actions, the critically rational agent “speaks out” about the emergent systemic constraints that he considers to be acceptable at the various levels of emergence identified by his critical theory. How he obtains and modifies that critical theory is captured in the generalized learning process sketched earlier. Along with the subsequent maximization of Equations (2) and (3) by all agents, this learning process fits into the overall complex adaptive system, one of whose characteristic emergents is the economy’s momentary *Esprit Critique*, C_t . In other words, one way in which this complex adaptive system is a liberating economy is that it allows individuals to take part in the above mechanism of interactive learning and reflection.

Formally, this *Esprit Critique* could be reformulated as a function of all circulating critical theories:

$$C_t = L_t(c^a_1, c^b_2, \dots, c^z(t)_{N(t)}) \tag{4}$$

The form of the time-dependent “emergence function” L_t might itself be determined by all the other parameters of the model, mainly the vector of individual actions $[(b_{1,t}, a_{1,t}), \dots, (b_{i,t}, a_{i,t}), \dots, (b_{M,t}, a_{M,t})]$, hence the state of society S_t itself. Now, just because it is a characteristic emergent doesn’t imply—contrary to what is imposed in the majority of “social physics” theories where emergent phenomena are studied—that C_t is a straightforwardly quantifiable concept. And even if it were, it is still not clear to what space it ought to belong. As Potts (2000: 11–54) explains, in standard theory market prices are located in R^k , where k is the dimension of commodity space, and the qualities of other emerging variables are similarly made to fit into real-numbered hypercubes, but this restriction is often too stringent for other social phenomena.

C_t is no one’s critical theory in particular, but it “tags” the overall type of society in which *all* agents live. As such, it is not always an easily observable aggregate because, in the end, as an aggregate it only shows up in certain localized “tags” carried by agents, or in certain hidden norms or heuristic

guidelines for critical reflection that circulate in the economy. Much like Imre Lakatos's (1970) criteria for the positive and negative heuristics of a research program, the *Esprit Critique* is not written down or printed onto tags like prices or other "types." It always needs to be testified to by individuals in interaction. *As a result, an economist wanting to "observe" an economy's Esprit Critique would himself have to do so by interacting with the economy's agents.* This argument was raised by Geuss (1981: 92–4) in his discussion of the epistemic status of critical theories. It is an absolutely crucial argument because it points to the impossibility of a non-pluralistic "science" of the economy. However, it carries with it the risk that the notion of *Esprit Critique* might be disparaged as "mystical," "fuzzy," or "inexact" by those of us who remain within the ambit of traditional—as opposed to critical—science.

In fact, as most of contemporary political philosophy has demonstrated, the emergent character of *Esprit Critique* is a crucial aspect of a liberating society. The process of reciprocal learning and mutual adjustments occurring amongst subnetworks and networks of subnetworks of Socratic demystifiers is strongly path-dependent on C_t . You can only critically interact if you are using the prevailing *Esprit Critique* as a globally endogenous, but individually exogenous, reference point. Criteria for what counts as legitimate criticism, as well as substantive contents of critical alternatives to the prevailing economy, can't be arbitrarily grasped out of the air. Just like other components covered by Hayek's notion of cultural evolution, they are part of an economy's evolving cognitive heritage, if only because critical theories are always enacted by the agents with reference to the current state of the economy.

As we saw in Chapter 6, Habermas's (1981) model of communicative action and discursive rationality is not a convincing model in the present framework. The free speech situation of uncoerced, undistorted communication is a regulative ideal and, as such, is largely transcendental in Habermas's theory. But why should we restrict an economy's *Esprit Critique* to being a regulative ideal for critical interaction? In fact, in the more general case, regulative ideals have to be seen as themselves *endogenously evolving within* a complex adaptive system. Even being able to invoke free, undistorted speech as a regulative ideal in distorted communication is already the result of a historical *struggle* around what makes a valid argument. Agents usually shape and alter their $\{c, d, \theta, CA\}$ vectors in situations of *non-ideal* speech. Habermas's particular version of " $C_t = C^*$ at all t " can only be a steady state—and perhaps only a metastable one, as much of political experience testifies—of a path-dependent trajectory towards cognitive emancipation.

In general, then, the time path $\{C_t\}_{t=1, 2, \dots}$ can be viewed as the summary of an economy's historical trajectory as driven by the reflexive emancipatory interests of its individual interacting members. Being an emergent time path, it will usually not reflect any *single* individual's

normative options or any *single* group's actual successes in freeing themselves from certain constraints. Rather, *it will be the compositional "trace" left in time by the often intractable inter-individual interactions of a mass of critics.* In that sense, this time path $\{C_t\}_{t=1, 2, \dots}$ is the one of the key characteristic emergents which bottom-up Critical Theory is concerned about. There are, of course, all the other characteristic emergents, whose nature will vary depending on historical events. Think of the unintended emergence of certain economic regimes (self-managed socialism, Rhineland capitalism, neoliberalism, etc.), political regimes (social democracy, liberal anarchism, Thatcherian ultraliberalism, etc.), and so on. How these other characteristic emergents are selected by the agents over time depends crucially on the *Esprit Critique's* time path. In that sense, my present approach offers an analytical device to better understand the deeper dynamics involved in the "idea-driven" social change processes theorized, for instance, in Blyth (2002) and in Campbell (2004).

Can normative economics become emancipation-oriented?

"Knowledge," yes—but what knowledge?

Let's return to the contrast between opportunistic harnessing of social complexity and CA-critical and OS-critical harnessing. We saw that in Hayek's conservative critical theory, the scope of the "knowledge" supposedly used by economic agents is kept rather narrow. It comprises two categories: first, the agent's localized, immediately accessible knowledge of his everyday situation and, second, a summary of all *market* interactions through the "price system." Clearly, interpreted from within my present framework, Hayek turns out to be laboring within one very specific steady state of the cultural-evolution process—namely, a state in which no agent any longer uses any critical knowledge. The only coherent way of justifying this heroic assumption is to suppose that, through previous rounds of critically minded interaction, all agents have unanimously arrived at the conclusion that $S = S^*$, where S is the "free"-market economy advocated by Hayek (see, for example, Hayek 1960). In other words, Hayek implicitly posits that $d_i = 0$ for all i so that the need for further reflexive criticism is fully extinguished. This is a theoretically well-known, but empirically absurd, *lock-in phenomenon* by which a single critical theory of the economy becomes self-fulfilling. But (as some of his more anxious writings demonstrate) even Hayek must have known that such steady states are, at best, metastable. They are, in any case, prone to sudden phase transitions as soon as some agents start reflecting again and wondering whether this is all the supposedly "free" economy has to offer, even in the midst of plenty.

A similarly narrow view of the knowledge used by agents, within a broad view of economic history, has been offered more recently by Douglass North in a sort of summary of his seminal work:

Competition forces organizations continually to invest in new skills and knowledge to survive. [. . .] Whether through learning by doing on the job or the acquisition of formal knowledge, improving the efficiency of the organization relative to that of rivals is the key to survival. [. . .] The immediate investment of economic organizations in vocational and on-the-job training obviously will depend on the perceived benefits, but an even more fundamental influence on the future of the economy is the extent to which societies will invest in formal education, schooling, the dissemination of knowledge, and both applied and pure research, which will, in turn, mirror the perceptions of the entrepreneurs of political and economic organizations. The key to the choices that individuals make is their perceptions, which are a function of the way the mind interprets the information it receives. The mental constructs individuals form to explain and interpret the world around them are partly a result of their cultural heritage, partly a result of the local everyday problems they confront and must solve, and partly a result of nonlocal learning.

(North 1997: 226–7)

What we have here is a portrait of economic theory as the positive study of interacting agents using uncritical, “everyday” knowledge perceived as information utilizable for survival purposes. Crucial as such survival considerations may be, by now they should clearly appear to us as insufficient. It is true that North pays some lip service to agents’ “cultural heritage.” Observe, however, that aside from that heritage they use nothing but “local everyday” knowledge and “non-local learning.” So the cultural dynamics is in fact conceived as purely exogenous to the agents’ intentional interactions. Consistently with mainstream complexity economics, therefore, North operates a reductionist move which by construction has to view culture not only as an *ex post* unintended result, but also as an *ex ante* non-intentional result of the agents’ problem-solving interactions. Culture is whatever supports the agents’ problem-solving, i.e., whatever rules of thumb or adaptation schemes they create by tinkering with everyday knowledge. In other words, agent *i*’s internal model is never critical. At best, it consists of some overall descriptive theory $x(S)$; more likely, of some list of rules and routines adapted to *i*’s immediate environment. Some cognitivists (see, for example, Holland *et al.* 1986) call such rules “theories,” but this designation has little relationship to what a Horkheimerian approach to critical science will call a theory.

This impoverishment of the agents’ cognitive make-up and of the notion of theory itself is reflected in the fact that most of what North portrays his agents to be doing is *a by-product of an evolving industrial market structure*: on-the-job training, performance-driven education and schooling, and so on. These agents are assumed to engage in purely opportunistic harnessing

of the social complexity which they unintentionally feed and have no intention of reflecting on.

Unfortunately, the kind of positive economic theorizing done by North can easily become part of the uncritical “everyday knowledge” of policymakers about the economy they are supposed to steer. If, according to the way the “new political economy” conceives of them (see, for example, Basu 1999; Persson and Tabellini 2000), these policymakers themselves have survival-determined interests—e.g. an interest in political survival through re-election—they will seek to use the positive economic theory provided by North in order to opportunistically harness the social complexity which they can, *within certain limits*, try to influence, but cannot fully control. These limits, of course, are always given by the characteristic emergents of the system which they analyze through North’s particular explicative theory. Thus, we may end up with a fully opportunistic economic system in which both non-policymakers and policymakers seek to exploit the existing complexity as they see it *ex ante*, in order to get the most out of it for their own respective survival within the system. No one is attempting to take critical distance from the system, because everyone is busy exploiting its (limited) potentialities from the inside. This is a thoroughly *non-self-criticizing* economic system. It can’t be a liberating economy, *even if* North is an advocate of “free” markets and “free” competition.

In fact, the picture could be even bleaker than that. If economists follow North in constructing “positive” theories that contain no critically rational agents, *even a critically minded policymaker who attempts to use these theories to critically harness the system’s complexity will most likely end up implementing measures of “reform” that treat all real economic agents as if they were uncritical automata*. So we would have a self-criticizing economy that criticizes itself through economic theories that contain no critical agents. This is analogous to an emotionally troubled person attempting to cure herself with the help of a psychological theory in which the concept of “emotion” is, by assumption, absent. Most likely, she will end up either having to take heavy medication in order to simply wipe out the emotions that trouble her, or submitting to a “guru” who makes her into a human robot. Using Hayek’s or North’s economic theory—or, for that matter, the theories inspired by complexity theory—in order to criticize the economy means, similarly, that you will have to treat the real economic agents “out there” as if they were—like the model-agents you’re modeling—atoms or automata. Either the critical impulse ends up simply being wiped out from all agents (since it finds no outlet anywhere and gradually withers away), or it becomes the exclusive territory of the economist himself. Not exactly a liberating economy, is it?

Now, such a picture can hardly be stable. It’s highly likely that, sooner or later, someone—whether a non-policymaker or a policymaker—will suddenly start reflecting. Since the exercise of critical reason is constitutive of our subjectivity, this sudden surge of reflection may occur even in an economy whose mechanisms effectively treat everyone as if they were automata.

The agent may wonder whether something other than mere survival or “flexible adaptation” isn’t a more important objective given the overall structure of the economy. In fact, shouldn’t the economy’s overall structure itself be modified? This agent, while remaining within the system, suddenly turns to a CA-critical or OS-critical harnessing of the social complexity.

In order to act in ways that advance his CA- or OS-critical view, he will need the whole arsenal of critically minded interaction which the above model has outlined. Essentially, this model assumes that in a genuinely liberating economy, agents seek to obtain knowledge not only beyond their everyday situational knowledge—which both Hayek and North acknowledge they must—but also *beyond the uncritically driven characteristic emergents of the system*—which neither Hayek nor North allow for.

Normative or positive?

This suggests that, in order to study complex cognitive empowerment and social emancipation—i.e., in order to study the process by which interacting agents make their economy more liberating in often individually unintended ways—*normative economics has to join positive economics in a radical recasting of its assumptions about the agents’ use of knowledge*. Both normative and positive economists have yet to take full account of the agents’ critical instrumental rationality. From what we have seen, it’s likely that when they do so, they are likely to find out that *the positive/normative split itself is in jeopardy*.

According to bottom-up Critical Theory, normative economics can only alter its epistemic foundations by explicitly modeling the various processes of knowledge production and of critical-knowledge acquisition by the agents in the economy. Knowledge-production processes may themselves have to be modeled as complex adaptive sub-systems of the larger system, as has been shown earlier and as has been acknowledged repeatedly by science economists (see, for example, Mäki 1999, 2004; Bonilla 2002; Mirowski and Sent 2002) and by evolutionary microeconomists. All these people, however, have constantly focused either on explicative knowledge aimed at improving the predictive capacity of internal models (Potts 2000: 155–80), or on explicative knowledge confined to scientific communities (Brock and Durlauf 1999). The specific topic of the production and acquisition of *critical knowledge designed to reflect on one’s everyday actions to improve society as a whole* has not, to the best of my knowledge, received even cursory attention in the theory of complex adaptive systems. It lies at the heart of the Critical Political Economy I will build up in Part IV.

Which characteristic emergents do we want?

How might normative economics be re-cast? An economy’s interaction structure unavoidably has to evolve certain complex adaptive systems

embedded in it if it is to count as a liberating economy at all. However, this does not imply that we have by the same token resolved the question: *Which complex adaptive system(s) should and can evolve? Which characteristic emergent(s) should be chosen collectively?*

To begin to answer this question, we need to postulate a relatively clear functional relationship between the structure of economic systems and the characteristic emergents they generate. To be able to say what the current spectrum of characteristic emergents for S is, we need to assume that the fact that any given characteristic emergent e appears as a relevant one for a system S is traceable to the morphogenetic features of S —namely, to how interactive structures in general generate a spectrum of emergents and to how the interactive structure of S has changed over time. If such a strong assumption were plausible, then by conceiving every critical theory c as a theory that models economy S or S^* as a system of complex adaptive systems, each critically rational agent could extract from her vector $\{c, d, \theta, CA\}$ an array of desired characteristic emergents $E(c)$. They would serve as “tags” for her critical view on social emancipation. Her actions (b_i, a_i) would then be geared, among other things, toward the realization of these desired emergents through the appropriate, complexity-creating institutional and legal framework. (One straightforward case is a Hayekian, free-market-oriented agent militating for full wage flexibility in a society where there are currently minimum-wage laws and other legal obstacles such as near 100% taxation of very high labor incomes.)

Therefore, *the question of which complex adaptive systems each agent believes should be fostered becomes, for the agent, an issue of OS-critical harnessing of complexity.* Each agent reflects *ex ante* (i.e., without any guarantee that he can implement it *ex post*) on what overall structure would be most adequate to the pursuit of empowerment and emancipation as she conceives it in her critical theory. A reader of the bounded-rationality persuasion might again intervene at this point to warn of the danger of hyper-rationalism. This objection is legitimate, but we will see it now no longer entails a reduction of the economy to a set of idiots.

For an agent to build an OS-critical overview of what characteristic emergents he believes “we” should want, moreover without any guarantee that his vision will have any *ex post* impact on the historical trajectory $\{S_t\}$, may seem a uselessly daunting task best delegated to a minority of experts or theorists. The necessity of this division of labor in the economy might, in turn, be explained by the most standard microeconomic choice models, whether of the full-rationality variety such as Becker (1965) or of the bounded-rationality variety such as Simon (1955), as well as of the transaction-cost variety such as Williamson (1973). Effectively, this introduces a differentiation between at least three categories of agents:

- First, there are those for whom $k_i = 0$ independently of the value of d_i , and who in the extreme limit simply eject d_i from their cognitive realm.

- Then there are those for whom θ increases sharply because of the realization that huge cognitive and economic costs are involved in really shaping a fully fledged OS-critical theory to guide their actions in society.
- Finally, there are those few professionals whom Horkheimer (1937a: 216) calls “theoretician[s] who set [themselves] up in opposition to society”—in German, *oppositionelle Intellektuelle*. They take it upon themselves to produce critical theories. This is their own specific way of critically accepting the prevailing economy, since they are making a living off an economy they intend to reject. However, it is also their own specific way of harnessing complexity in a CA-critical or OS-critical way, since their social role is to cognitively empower initially unreflexive, but potentially dissatisfied and hence potentially OS-critical, agents.

As Horkheimer and other members of the Frankfurt School have emphasized, these oppositional intellectuals are constantly at risk of becoming mere producers of “pseudo-critical knowledge” about the economy. That would be the kind of knowledge that all three categories of agents bask in during weekends and holidays, but never actually put into practice.

The only way for the oppositional intellectuals to avoid this is to make their work *socially engaged*. One of their main tasks is to constantly call on the two other categories to reflect. The necessity of this task actually has to be part of any critical theory they produce. The two other categories shouldn’t mainly reflect on what these agents themselves believe society should be like and how it could be improved: by definition, they have momentarily given up this effort. What these agents should reflect on are the critical theories constructed by the oppositional intellectual *with them in mind*. Thus, as argued by Walzer (1987, 1988), the oppositional intellectual is in a position where she has to criticize her fellow economic agents twice: one time for not being reflexive enough about some of the *de facto* results of their uncritical social interactions, and then a second time for not paying sufficient attention to that first criticism.

Ultimately, the oppositional intellectual’s major task is to jar other agents into becoming aware of *the social mechanisms which have shaped and continue to determine the value of their thresholds θ and their critical-reaction parameters k_i* . Whereas mainstream approaches to “rational” optimization will tend to reify the above division into three given categories of agents, bottom-up Critical Theory is adamant that in a genuinely liberating economy this division is only one very particular case. It all depends on whether the division has itself emerged from critically rational interactions, or is the unreflected result of uncritical interactions.

To the oppositional intellectual, “transaction costs” are not an intangible datum. They are partly shaped by the agents’ uncritical participation in economic interactions, which may induce a high threshold θ in people of the

second category. On the contrary, a *reflexive revision by these same agents of their reasons for “playing the economic game” might lead them to reduce that threshold.* And if they don’t reduce it even though they could have, that’s a whole different game. Similarly, to the oppositional intellectual, very low or even zero k_i s in people of the first category are not a mere datum. *They may have been induced by the very economic mechanisms that need to be reflected on and criticized.* For instance, capitalist commercialism’s promotion of the “middle mind” (see White 2003) may lead alienated consumers and workers to have $k_i = 0$. In other words, the oppositional intellectual sees it as her main role to *interrogate agents about some of the parameters of their rationality and to ask them if they rationally adhere to those rationality parameters.* In a genuinely liberating economy, agents are not simply “rationality takers.”

Two things seem clear after the discussion of my simple heuristic model. First of all, even if the tripartition of society should occur, it is unlikely that the top-down axiomatics of mainstream economics would be the best way to work as an oppositional intellectual. Most likely, different sets of axioms would have to be specified for different particular situations of suffering in the economy, each such situation being linked to a particular critical theory of the economy. Thus, axiomatic work may not generally dispense the oppositional intellectual from reflecting more deeply on which critical theory she adheres to, and to which agents in the population she is addressing her axiomatic analysis as a tool for their emancipation. Mainstream modeling can’t offer such a framework because, by its very structure, it’s not addressed to anyone in particular.

The automata-individuals that inhabit mainstream models aren’t constructed to suffer and, hence, to join their effort with the economist in order to figure out the best interpretation of the economic causes of their suffering. They’re billiard balls, not human subjects. If the mainstream normative economist believes they’re suffering and hence constructs an axiomatic model of a better economy for them, they’ll never know she did. They’re not part of the reflexive endeavor. They’re as alienated as you can get, and they’ll remain that way even in the “free” market economy, or the “free” socialist economy, which the mainstream economist’s axioms draws up for them. The billiard balls may have “preferences,” but they use them for groping around on the table, not for expressing their critical views on what a better table ought to be.

Second, the division of society into the three above categories of agents is not a kind of “natural” or “inevitable” process. Hayek maintains this implicitly when he claims that epistemic limits inherent in the human brain make it impossible for any individual agent to “comprehend” the whole economic process. Of course, that impossibility is a fact, but no critical theorist (least of all Hayek himself) has ever been deterred from theorizing a better economy by her own *de facto* inability to visualize all agents’ ongoing actions in one gaze. Now, if this is so for someone who is already a theorist, then why

should it be “naturally” different for any of the other economic agents? Epistemic, psychological, and economic costs may be more a datum of the prevailing economic system than a natural or constitutive feature of the human brain. Hence *every agent might, as part of his critical endeavor, start by reflecting on the economy-wide factors which make him too limited, or too tired, or too busy to learn about complexity in the first place.* He might quickly discover that it is the adaptive demands made on him by the current system’s complexity which prevent him from learning enough about complex adaptive systems to be able to criticize these current adaptive demands. Surely, this would be a good reason for him to start questioning the current economic system as a system that structurally denies him his cognitive empowerment!

Therefore, one of the first tasks of the oppositional intellectual might well be to reflect on ways of making “complexity teaching” as widespread as possible. This is a task which even the most contemporary work on economics and the teaching of complexity has tended to minimize. Most complexity economists don’t push for the teaching of complexity because it could empower the agents in the economy. They push for it because they value “scientific,” top-down knowledge of “the real world” (see, for example, Colander 2000). In the usual mainstream perception of things, knowledge of complexity first and foremost empowers the complexity economist: this is the essence of the positivistic methodology that emphasizes the top-down tasks of economic “science.” Bottom-up Critical Theory cannot accept such an *apartheid* between the economist and “her” agents.

If mainstream models were, instead, interpreted as political programs written up under a counterfactual assumption of unanimity, things would be very different. The implicit assumption would be that the agents in the model have *already* deliberated and decided that the model’s (implicit) prescriptions of what rationality means are alright with them. Then, the model can no longer be seen as a “scientific” description of “what is,” but as a political proposal vying for our reflexive appeal. This is the alternative we’ll explore in Part IV.

Breaching the positive/normative divide

I hope to have shown that bottom-up Critical Theory, apart from having the sound philosophical foundation which I have discussed in Chapters 5, 6, and 7, offers a way of extending the theory of complex adaptive systems in the direction of a normative economics with sounder methodological foundations.

Rethinking “positive” economics: a broader falsificationism

To be precise, bottom-up Critical Theory can be viewed as a version of complex adaptive systems theory where the agents’ internal models, which drive their actions and reactions in interactions, are critical descriptions of the

economy. Such theories describe the economy while, at the same time, rejecting the fetishism of “factual information” or “the economy as it is” and replacing it with the probing of ways in which the current economy could be made more empowering and emancipatory. The task of each critical description of the economy is to coherently flesh out these ideas of empowerment and emancipation and to use them to formulate a theoretical judgment about the limitations of the existing economic system, as well as a practical judgment about what can nevertheless be done under the current conditions.

In that sense, the approach of bottom-up Critical Theory implies a rather fundamental recasting of Popperian falsificationism. In the present light, Popper’s methodology appears as a pretty aristocratic activity confined to the “inside” of “science.” Contrary to Blaug (1992), who would like to see Popper’s criterion of data-dependent “scientificity” applied across the board to economics, my own approach leads me to advocate, *as part of a broadened falsificationist scheme*, a method of what I would term *Horkheimerian falsification*.

This goes as follows. “The data” of the economy, which Popperians want to take as the exclusive reference point for a really valid form of knowledge, are frequently—as composite social phenomena—emergents of the very economy under critical scrutiny. Thus, what if “the people” in fact don’t want these particular data to emerge because they rationally object to the systemic mechanisms that make them emerge? Surely, data generated by an objectionable system cannot be the final word on everybody’s “knowledge” of that system, even if that system currently acts as the generator of these data. Thus, by identifying economics with an empirically corroborated knowledge of currently prevailing economic mechanisms, positivist or Popperian economists cut away parts of reality that could legitimately count as knowledge in a broader, more critical sense.

But as we saw, such an broadened falsificationism means that the top-down vision of “the scientist” needs to be revised. Strictly speaking, you can’t be a scientific economist if you don’t know which critical theories *of* the economy are circulating *in* the economy. Knowing this is surely part of your role as an analyst of the economy. Moreover, whenever you construct a model of, say, unemployment, you will have to include in your falsification scheme the presentation of that model to actual unemployed agents, as well as to employers and—why not?—to public servants who deal with unemployment. The reason is that your model will be invalid if it turns out to have no reflexive appeal whatsoever to these people, with whose rational actions it deals.

Rethinking “normative” economics

My views on the role of critical knowledge about the economy in the economy has implications not only for positive economics, but also for

normative economics. In fact, bottom-up Critical Theory seems to jeopardize two established dichotomies that rule the mainstream:

- 1 The first dichotomy is that between positive and normative economics. It is put into question because any agent endowed with a critical theory of the economy carries with him *both* a description *and* a condemnation of society as it is, all in one. In fact, the *reason* why the agent wants to have an accurate description of the current economy is that he wants to act to change it either CA-critically or OS-critically. That rational desire is the rationale for the circulation of critical theories to begin with.
- 2 The second dichotomy is located within what is still called normative economics. It concerns the split between the axiom-building theorist and the unknowing agents who supposedly “act out” these axioms. If the theorist is indeed doing *normative* work, he is supposedly offering axioms which he believes the agents would agree to if they knew them. If not, we remain confined to the narrow paternalistic-technocratic view of how the theorist, the “ruler,” and the agent coexist in a pseudo-“free” economy. Now the question is whether the agents would agree with the axioms if presented with them. There is no legitimate reason not to assume *as part of the rational-action assumptions of the model* that they are endowed with a capacity to reflect on, and perhaps even construct outright, the axioms they feel would best express their emancipatory interests. And this leads us directly to ask how critically rational agents will interact with their *ex ante* intentional critical theories so as to generate an *ex post* unintentional social situation. This is still, in a certain sense, “normative” economics, but it is based on *an entirely different view as to where in the economy the normativity is being produced, and with what cognitive and reflexive tools the agents are equipped so that this normativity is truly endogenous and not exogenously confined to the economist’s brain.*

Much about the complex dynamics of such a system has been left unanswered here. In particular, we have no precise and plausible models of credit attribution. We also don’t yet know a lot about how such *ex ante* intentional theories will get “resolved” into an *ex post* state in which, perhaps, none of them is fully realized and some of them might find the actual society still as unsatisfactory as before, though perhaps differently so. Will this brutal drop from grand emancipatory intentions to mediocre concrete realizations tend to erode the agents’ desire to look for and formulate a critical theory? This could explain much of contemporary *anomie* and absence of a “desire for criticism” (see Arnsperger 2003b). Is such “mass criticism,” in which all individual agents to a greater or lesser extent modify their everyday actions so as to try to change the world [see Equation (2) above] a recipe for massive disappointment? Or are there certain conditions under which this self-dissolution of mass criticism can be averted?

These are deep issues that I cannot address here, but by now one thing should be clear. Such issues and questions are not made easier by the use of analytical tools that simply assume away any of the critical cognitive skills with which critically rational agents go into the world. An economy is not made freer by assuming it to be inhabited by unthinking automata for whom, sure enough, freedom is not an issue!

In Part IV, we now draw the implications of this insight for the role economists might play in society, and for the structure and teaching of economics.

Part IV

Critical Political Economy

The logic of “post-orthodox” pluralism

9 The use of economics in a complex economy

The economist as participant observer

The ultimate objective of bottom-up Critical Theory is to understand how agents who, *in* their interactions, are concerned with the systemic constraints *of* their interaction, end up generating *de facto* systemic constraints that (a) are non-intentional and (b) can be put into question by reflexive distancing. This can allow us to generate a multilevel retroactive loop inside of which emergent phenomena serve not only as systemic constraints, but also as endogenous “reflexive springboards” for individual and collective action aimed at shifting or even subverting the systemic constraints, or at gradually altering their nature.

In this kind of loop, agents are free in a sense that differs pretty profoundly from what the advocates of “free” markets have in mind. *In this book, a free agent is a cognitively empowered agent.* And a cognitively empowered agent is an agent who obtains, from within the economic process, the resources required for him *to reflect on, and act toward, a critically elaborated idea of emancipation.* So here, free agents are seen as constantly attempting to harness social complexity with a view to rational theoretical criticism and rational transformative action. As indicated in Part III, these attempts generally lead them to use *critically oriented collectives.* Such groups are, themselves, emergent phenomena of the agents’ critically minded interactions based on what I have called their *complete internal cognitive models.* These internal models are crucially distinct from mere descriptive data about the economy, or about that tiny subpart of the economy called the agent’s “environment.”

This critically minded interaction relies centrally on the three capacities studied in Part III: rational non-conformity, critical demystification, and Socratic cohesiveness. They generate a complex dynamics of formation, confrontation, and multilateral transformation of agents’ critical ideals. The dynamics is propelled by collective actions and by the fitness credit derived from them period after period. I admit to having said little about this *critical-learning process* itself. The underlying objective, however, is now becoming clear. We need to reformulate the agents’ cognitive abilities and

tools in order to move from normative economics as currently construed to a *political economy of the emergence of critical economic theories*—in short, we need to move toward a *Critical Political Economy*.

As will become even plainer in this last part of the book, in such a framework the role of any economic theorist can only be *to participate in the complex and therefore unpredictable dynamics of a critical-learning process*, rather than harboring the illusion of grasping with “his” set of axioms what “we” supposedly view as necessary, as plausible or as acceptable. Any set of axioms has to be seen as a *critically descriptive* proposal, as a set of principles addressed to certain agents who might adopt these axioms as tools for their militant action within the ongoing economic process.

Therefore, bottom-up Critical Theory makes the scientist’s top-down position shaky. It doesn’t destroy it completely, as we will see, but it forces each theorist to realize that *even a top-down view of the economy, and its associated models, is in the end nothing but one more component of an elusive, bottom-up process that cannot be caught by any theory*. Thus, any normative theorist can only offer a complete cognitive model of the form $\{c, d(S, S^*), \theta, CA\}$ which he supplies to those agents of whom, because of the distance d they are experiencing, he feels he can reasonably expect that they will adhere to S^* and follow it up with the associated collective action CA . This is a generalized concept of the oppositional theorist—a theorist who means his theory for someone, and who knows a normative theory with no one to enact it is a truncated and ultimately useless effort.

Unanimity as a heroic counterfactual

Obviously, it is possible in principle to conceive of a cognitive model that presents itself as universalistic from the start, i.e., one in which CA would cover the whole population of agents, so that $\#(c) = \{1, \dots, N\}$. However, such a model would base itself on heroic assumptions as to the ability of c to instantly disseminate among the whole population, i.e., to be unanimously adopted at a zero cognitive-transition cost. One such heroic assumption actually prevails in the vast majority of economic paradigms currently in circulation, when we view them as alternative critical descriptions of the economy. In each critical description, the distribution D of other critical theories is degenerate, so that $freq(c') = 0$ for all $c' \neq c$. This boils down to assuming unanimity *ex ante* rather than deriving it as a particular case of the interaction between critically rational agents. So each circulating paradigm, with its various associated models, implicitly stands on the shoulders of an already completed process of critical learning, whose assumed outcome is that all critically rational agents have adopted that paradigm itself! In a sense, as we will see later in Part IV, such a counterfactual unanimity assumption is necessary for heuristic reasons. It allows theories to be taught *as if* they were self-supporting within the population to whom they are being taught. It allows a model to be taught without

grappling the difficult question of what would happen if some, or most, or all of the agents in the model were to strongly reject the “reality” the model purports to describe.

However, this “heuristic cognitive unanimity” among critically rational agents has to be handled much more carefully by the theorist than is usually the case. Outside of such particular cases, a crucial role is played by the transformation function $f_i(\cdot)$ with which the agent i translates D into CA_i given c and $\#(c)$. This function represents the agent’s “*systemic consciousness*” at the moment when she rationally selects her action. Thus, in an economy of critically rational agents, each critical theory c needs to include an analysis of the economic conditions allowing for its own implementation. As a result, one of the theorist’s main roles is to suggest $f_i(\cdot)$. With this transformation function, each complete internal cognitive model will contain a positive representation of the complex adaptive system S within which the agent will attempt to implement or approach her preferred social ideal $S^*(c)$. This is what will make c a truly critical description of S .

The economist as supplier of critically reflexive tools

In this way, we can respect the Hayekian cognitive clause of “not any one person,” whose stringency guides this whole book. The theorist can never have access to the data which would permit a complete bird’s-eye view: “Such [a social] order will always constitute an adaptation to the multitude of circumstances [. . .] which are not known to any one person” (Hayek 1973–79: 44). As ought to be obvious by now, this clause has many negative implications on which we have dwelled, but it doesn’t forbid the economist from fulfilling the essential function of being a *producer and supplier of the critically reflexive tools* with the help of which the agents will interact *within the ungraspable process*.

Both the unanimistic and the technocratic alternatives outlined in Part III are very specific, and unduly restrictive, ways of producing and supplying these reflexive tools. In essence, they restrict “the agents” to whom the economist’s knowledge is addressed to be either the community of economists themselves, or—at best—the small, select collective made up of (a) the economists subscribing to some paradigm P , (b) these economists’ students, and (c) the subset of political and other decision-makers with whom these economists and their students will interact. Such a vision is not *per se* inconsistent, except in those paradigms where the decision-makers in class (c) are assumed to be self-serving and myopic, and therefore cognitively different from the economists and students in classes (a) and (b). Such paradigms can’t claim to reflect a vision of a liberating economy. Critical Political Economy seeks to re-embed this very specific politology within a broader view of how critical descriptions of the economy should be “manufactured” and “distributed” within the *whole* population of agents.

So in essence, Critical Political Economy is the dynamic analysis of how critical economic theories are produced and diffused within an interactive system where agents consume, invest, compete, or cooperate, but where their economic actions as well as their actions linked to the adoption and dissemination of critical theories are “colored” by their belonging to critically oriented collectives that intend to harness the economy’s prevailing complexity for the pursuit of their own emancipatory interests. Each such collective carries, among other things, a more or less fuzzy set of characteristic emergents that represent the types of systemic constraints which the members of the collective see as acceptable. The interaction of such critically oriented collectives leads to the co-emergence of momentary norms of interaction as well as of the economy’s general “critical atmosphere,” i.e., the economy’s momentary *Esprit Critique*. Both of these elements act as limitations on the possibilities—i.e., on the spectrum of critical theories and on the kind of interactive confrontation between them—for the next period, while at the same time making it possible for these very possibilities to emerge.

Thus, we are dealing with what Holland (1998: 122) calls “one recurring theme [which] is essential to emergence [in complex adaptive systems]: in each case there is a procedure for freely generating possibilities, coupled to a set of constraints that limit those possibilities.” As I have endeavored to show in Parts II and III, the two main concepts of (i) critical instrumental rationality and of (ii) the identification of complex systems through their characteristic emergents, are essential building blocks for such a “humbling” approach to economic theory in which, in fact, the split between positive and normative becomes much less clear-cut.

Free-economy economics as a plural field of reflection

What we need to investigate now are the implications of this approach for the structure of economics and for the way it is taught. I want to argue for an economics whose practitioners consciously see themselves as promoting *a plural field of economic reflection*. This is very precisely what should take the place of standard normative economics. In short, my position will be the following:

- “Positive” economics does not exist as an autonomous activity. To the extent we do positive work, it should always be with the objective of feeding a critically descriptive theory of the economy. So *all positive economics is intrinsically normative because it’s intrinsically critical*.
- As a result, any economic theory—or some subset of its models—that enters the public arena has to be viewed as a tool for critically oriented reflection addressed to some part of the actual population of agents. Therefore *the discipline of economics, as the system in which all such economic theories (or paradigms) get co-generated, is necessarily itself a*

complex adaptive system in which economists compete for agents' attention. This implies that in a genuinely liberating economy, economics can only be a process—and, more precisely, *a process that constantly generates and regenerates a “plural field of economic reflection.”* This field is not fixed, but its degree of plurality will, at least in the initial stages of the critical-learning process, be an index of the economy's freedom.

For this to be the case, each economist has to learn that she is both the creator of a particular critical perspective on the economy and a participant in the free dynamics of critical perspectives. So if, as an economist, you truly wish to promote a liberating economy—in the sense of an economy inhabited by cognitively empowered agents—you should accept to put your own preferred approach to the economy through what, in Chapter 11, I will call the “*Critical Political Economy test.*” Critical Political Economy, therefore, is designed as a (meta-)critical tool to test whether your critical description of the economy really does promote a liberating economy. Nothing short of this can be acceptable if we really want our economy—with the economists who study it—to become a self-criticizing system. Critical Political Economy will provide a test by which you can see whether you are currently participating in or, on the contrary, working against, the attempt to create a *free-economy economics*. And if this test is to serve as a criterion for organizing the circulation of economic paradigms, pluralism is the only viable option. Needless to say, we are currently still way off the mark. In these three last chapters, let us see what might be done to reduce the dissonance.

We are going to return to some of the main themes set out in Part I, enriched by the journey that has led us through complexity economics and Frankfurt social criticism. If economics today is to regain its former status as a discipline of enlightenment and liberation, so my argument goes, it needs to integrate the two main themes of Parts II and III. Within that methodological context, the economist is both an observer and an actor. She is, in fact, a *participant observer* who can't consider herself fundamentally different from the “entities” she observes and writes theories and models about.

A self-criticizing economics in a self-criticizing economy

Therefore, in her own activity within a complex economy, the economist is everything but a selectively open quasi-monad. This fact should affect the way she does theory and the assumptions she makes about the “entities” she is modeling. In other words, moving from the paternalistic-aristocratic and unanimitistic-technocratic views toward a critical-process economics is likely to deeply modify the role played by the economist in the economy. The way the economist and “her” agents interact needs to be profoundly re-thought.

To a significant extent, economics could become a fully self-criticizing discipline *by learning to build models that explicitly articulate the conditions under which they will be “self-sustaining,” i.e., the conditions under which the agents within the model would accept the theoretical representation that is made of them.* By the same token, no theoretical representation is ever immune to criticism from the people it purports to model. Therefore, a central feature of bottom-up Critical Theory is its view of the economy as a complex process in which theoretical representations of the economy are discussed and criticized by *agents who don’t accept to simply be described or analyzed but seek to be the actors of their own economic destiny.*

This implies a pretty unusual “dialog” between the economist and his model-agents. Such a hypothetical dialog embodies what I view as a radical democratic ethos which an economic approach has to embrace if it’s to become a fully fledged part of Critical Political Economy. As political programs which guide the emancipatory action of the agents in society, economic theories become, in part, endogenous to the society they seek to describe. This “self-endogenization” of economics, this emergence of *economics as a self-criticizing discipline that tries to model a self-criticizing economy,* is one of the key elements of this last part of the book. As a result, Part IV will probably also be the most controversial one, because it will have concrete implications for the way in which economic knowledge has to be constructed and disseminated.

These implications are offered here as food for further thought within our economy. The things I’ll say are set out in a normative tone with “has to,” “must,” and “should” making frequent appearances. This can’t really be avoided. I believe in the implications I’m setting out and wish them to be reflected on and discussed, both among economists and among citizens more broadly. Still, I would be a contradiction with the bottom-up spirit of my book if I were to believe that my writing down what I see as a *totally necessary implication* of my own analysis thereby gives me the magical power to implement or impose it. I don’t, of course, seriously believe my saying something I believe we *have to do* will actually suffice to have that thing done. Economics is, after all, a definitely bottom-up affair, both in its research and in its teaching (see, for example, Colander *et al.* 2004: 1–6). It’s up to you to decide whether you feel what I say impels you to change your views and your actions. My tone of urgency is meant to jar you into seriously considering what I suggest—that is, into considering it after having *deeply reflected* on yourself, on your true aims as an economist, as a politician, or as a citizen, on the best you want and can do for your fellow citizens, and so on. When I say that “Economics has to become X” or that “We must do Y,” I mean that X and Y correspond to the *highest degree of self-consistency* I believe economics can attain. And self-consistency is indeed a moral duty, a liberating aim for knowledge construction, regardless of whether economists as individuals or as a profession are immediately able, here and now, to attain it fully. So the material of this last part of the book

is, in the noblest sense of the word, an offering. It is my critically reflexive theory of a better economics in a complex economy. If I didn't believe that everyone would benefit from sharing it, I wouldn't have written it.

In this chapter, I suggest a typology of economists according to the aims they attribute to their theoretical work and to the audience they intend to address. This will allow us to once again confront the Vienna and Frankfurt views, this time on their different conceptions of the end-point toward which the dynamics of enacted critical cognition (discussed in Chapters 7 and 8) is supposed to lead. As we will see, neither Hayek's nor Horkheimer's more narrow views on cognitive empowerment are true to the spirit of bottom-up Critical Theory, which of necessity is more radically pluralistic.

The idea of an inherently pluralistic economics oriented toward citizens' cognitive empowerment is likely to raise some skepticism. If economics is to ever be a true science, the argument goes, it cannot be downgraded to a "popular science." Competence and technical expertise are required, and such talents are not innate in all "the people." Therefore, *We, the People* cannot ever be a starting point for an economics textbook, just as "We, the particles" can never launch a volume on biocellular medicine or on quantum physics. If any preamble needs to be given, it seems it can only begin with *They, the economic agents*. This position is the essence of positivism. Economists are those specific economic agents who talk about the economy—themselves included—as if they were not part of it and as if their knowledge about it did not affect its operation. As we have seen repeatedly, they discuss economic agents in the same way that biologists discuss cells or molecules, even though in contrast to the biologist the economist is of the exact same nature and is at the exact same ontological location as the "objects" whose actions and interactions she is discussing.

This widely shared methodological stance has remained *prima facie* self-evident even our present, allegedly post-positivist age. But it is also, upon reflection, rather problematic. It indicates that, in the mind of almost all social scientists, and especially economists, "the economy" is not by itself a cognitive unit, much less a self-reflexive cognitive unit. It can have no *immediate* knowledge of itself and needs specific individuals in order to gain *mediate* knowledge. *How* are these individuals designated from within society to stand within society "as if" they were standing outside of it? What *legitimacy* might their pronouncements have? Such queries are not part of the standard questions asked within the economics profession. Yet, the implicit assumption when an economist says something about the economy is that she is fulfilling a social mandate given to her by "the people," if that expression makes any sense. Without such an implicit mandate, the economist could never claim any audience's attention. But then, why should the mandate remain only implicit? As an oppositional intellectual in a liberating economy, wouldn't any economist have to explain to which audience, with which emancipatory needs, she addresses her work?

Would that make her theories and models any less “scientific”? I claim it wouldn’t, provided we accept the framework of critically rational agency I have been developing here.

Let me be a bit more specific. How and why knowledge *about* the economy is produced *within* the economy is, in and of itself, a thriving if small field of contemporary academia. I can’t possibly survey the literature on the subject in this book. My question here is a bit less broad. It concerns the issue of whether there is a sort of “*democratic ethos*” *intrinsically attached to the economist’s activity as a social scientist*, and whether this ethos—which most economists will indeed assent to if not applaud—has implications for the way in which economics is constructed and taught as an intellectual discipline. In essence, the issue is the following. Contrary to the biologist’s molecules or cells, *economic agents are potentially able to acquire knowledge about the fact that, somewhere within the economy, knowledge about them is being constructed and taught. Should economics itself encourage their enlightenment in this direction, or should it on the contrary keep this knowledge esoteric?* In other words, should agents be encouraged to know about, and even participate in, the production of knowledge about themselves and their economic interactions, or should the construction and diffusion of the mediate knowledge about the economy be restricted to a small number of “experts”?

This is not a completely new question. As has been shown, for instance, by Michael Bernstein (2001), it has pervaded private and professional discussions among cultured and socially aware economists since the turn of the twentieth century, and perhaps even earlier. However, the problem was seen as an issue to be settled within the academic aristocracy. Moreover, the way it was settled—if at all—seems to have had little or no implications for the basic way in which economics was constructed and taught. One notable exception was the Rational-Expectations School and its rather short-lived follow-ups in the form of theory-free, autoregressive models *à la* Granger–Sims. The bulk of mainstream economics doesn’t yet seem to have taken stock of what would be implied by a more lucid understanding of the relationship between the theorist and her object.

In fact, as was argued extensively in Chapters 2 and 3, mainstream economics has remained firmly within the ambit of an atomistic vision of human cognition. As I have shown, what is still basically lacking even in well-meaning normative analyses is the fundamental characteristic of *the economic agent as an everyday theorist*. Over the course of Chapters 6, 7, and 8, we have gradually built up what I take to be an important insight gathered from a mixture of Hayekian and Horkheimerian thought. The production and diffusion of economic theories has to be part of economics itself if we are to understand the process by which agents reflect on economic reality and act upon their (more or less self-consistent) aspirations to a better economy. We know that mainstream economics operates on the assumption that *agents who aren’t economists don’t, and shouldn’t, reflect on*

the economy as a whole, lest the whole theoretical construct be destabilized by the agents' own objections to the way in which economists model and formalize their actions and ways of life. Recent approaches to heterogeneity have allowed for differences across agents in terms of religion, preferences, cultural background, etc. Few if any have allowed for agents to adhere to different economic theories. This would, indeed, introduce a circularity which positivists find it difficult to accept; it jeopardizes their very conception of “science” as being a top-down activity like that of a zoologist watching a beehive, a colony of apes, or an anthill.

The critique of mainstream “economics as zoology” has one important implication. Economic models need to take explicitly into account the activity of economic theorists and the ways in which the teaching of economics may affect the dynamic path of the economy. I want to differentiate between at least three types of economist, and show how different visions concerning the economist’s role in the economy imply different visions as to how the economic agents’ most fundamental motivations are apt to change over time.

After that, Chapters 10 and 11 will tackle the basic challenge as it has emerged from this analysis. To make economics itself into a genuinely self-criticizing discipline (which is one of the prerequisites for the economy itself becoming a liberating economy), the agents’ own reflexive and theoretical capacities have to be made explicit enough so that—somewhat in the fashion of Woody Allen’s film *The Purple Rose of Cairo*, in which the characters step out of the movie screen because they object to the screenplay and want to have a say in the story line—any economic model can be criticized by the agents it models. Building such *self-reflexive economic models*, however, is bound to break down the last taboo of so-called “scientificity.” The economist will have to endogenize herself within her own vision of the economy and will, in particular, have to explain why she, as an economist, assumes herself to be fundamentally different—cognitively but also, perhaps, morally speaking—from the economic agents she is modeling. In this way, I hope to open up fruitful avenues for the further elaboration of a genuinely empowering economics, as far as it will go.

The individual use of economic theories

One of the main starting points of recent cognitive economics (see, for example, Holland *et al.* 1986; Walliser 2000) is that, very generally, individuals make decisions to act on the basis of a “theory.” This is an empirical fact drawn from investigations in decision theory and in decision-making processes. In general, an individual attempts to adapt optimally to his “environment” on the basis of a “theory” that allows him to perceive the elements of his context which are relevant to his decision. This means the rational agent puts himself into a position of detachment which allows him to acquire a *global overview* of his situation.

This approach to decision making is today mainly a microeconomic one, concerned as it is with one individual or one organization (firm, trade union, etc.) acting within a more or less circumscribed context. It may, however, even in such a circumscribed context, require certain macrosocial data, and in some cases even ideally an overall model of the economy or the society. This is all the more the case for decision-making processes in economic policy, where macroeconomic models continue, for better or for worse, to rank among the main tools provided by economists to those specific economic agents called government agencies.

Sure enough, ever since the so-called “rational expectations” critique, this decisional use of macro-models has suffered a setback. The reason, however, is well known: in the Muth–Lucas view of economic interaction, not only the government, but *each individual agent* acts from some internalized macro-model, and if each agent seeks strategically to maximize her own objective, the internalization by various individuals of a *publicly announced* model in addition to their own private model is bound to induce decisions such that the predictions of the governmental model will, most of the time, turn out false. That model will thus cease to serve as a tool for public decision making. Muth, Lucas, Sargent, and the other rational-expectations theorists moreover assume that each individual has (over a gradual learning process they don’t model) internalized the “true model” and that there is therefore no gap between the private models and the officially announced one. This has significant consequences for the dynamic path followed by the main economic variables, but it needn’t detain us here.

Let’s simply notice that certain agents, and perhaps even all agents, may carry with them a *theoretical endowment* concerning not only “local” contexts but also the overall operation of the economy. This is the endowment—regardless for the moment of whether it consists of positively or critically descriptive theories—which is totally absent from the Walrasian model discussed in Chapter 2, and which has been largely responsible for the failure of the model to account for radically transformative motivation and action. This same drawback, as we saw, is shared by all of mainstream economics, even at its cutting edge. In the approach I am advocating in this book, in contrast, the concrete economic process is driven on by the earnest efforts of the individuals both to convey knowledge to others and to accept knowledge from others. It is a process which, in some sense, is still “blind” *à la* Hayek, but to the extent that the knowledge handled by the agents is critical rather than merely “positive,” this “blindness” now coincides with the individuals’ sincere attempts to gain insight into what is wrong with their economy and how it could be improved.

Path dependence, variety, and ignorance

But if *that* revised type of “blindness” is really an indispensable feature of any liberating economy, what are the implications for education and, more

specifically, for the teaching of economics? How can we move from “the use of pragmatic everyday knowledge in the economy”—Hayek’s narrow model—to “the use of critical knowledge about the economy in the economy”—the idea of a bottom-up Critical Theory?

Path dependence and the exploration–exploitation tradeoff

Hayek famously stated that social phenomena are “[t]he results of human action but not of human design” (Hayek 1967: 96) and that “[t]he attitude of the liberal toward society is like that of the gardener who tends a plant and in order to create the conditions most favorable to its growth must know as much as possible about its structure and the way it functions” (Hayek 1944: 18). By that, he has often been taken to mean narrowly that top-down intervention into self-organizing markets can only stifle the spontaneous ordering mechanisms which pivot around competitive price formation and its capacity for socially optimal information dissemination. It is true that he *did* mean that, but our whole discussion in Parts II and III has led us to broaden his insight considerably, and not necessarily in the direction his narrow, principled pro-market theory would accept.

What can it mean to treat the economy like a “gardener” who tends a “plant”? It means, simply, to acknowledge that there are *some* emergent phenomena in any liberating economy, and that to the extent an economic phenomenon is really emergent—rather than, for instance, a sum-total or a commanded outcome—it simply *cannot*, for epistemic reasons, be “controlled.” In other words, to know as much as possible about the structure of the economy and the way it functions means, simply, to know where to locate the economy’s specific emergent phenomena and to give up the illusion of being able to embrace them from the top down in order to steer them deliberately. Any economy that is liberating has, as we saw in Part II, a set of *characteristic emergents* which characterize the particular way(s) in which it is a “liberating” economy.

This does *not*, however, imply that *all* liberating economies’ characteristic emergents are *bound to be* competitive market prices, or even more broadly competitively generated indices. Reducing the set of admissible characteristic emergents to competitively generated market prices is a step which Hayek, at least in his earlier writings, takes too lightly because by doing so he completely shortcircuits the whole complex dynamics we outlined in Chapters 6 and 7. Even in his later writings such as *The Constitution of Liberty* (Hayek 1960), *Law, Legislation and Liberty* (Hayek 1973–79), or *The Fatal Conceit* (Hayek 1988), where a broader institutional co-evolutionism is grafted onto the specific rise of markets, one of the constantly underlying axioms of the analysis is that the only “really liberating” society can be that which co-evolves competitive market institutions.

No one can, of course, question Hayek’s argument if it is taken to mean that such a co-evolution is *one* possible path. It will also be a desirable one

in several respects if, along the dynamic path of critically minded interaction, most or all agents adopt as their critical theory one version or other of Hayekian conservatism. Indeed, in his specific adherence to free-market ideas, Hayek himself believes that every sensible person can only be, upon reflection, a Hayekian. And in that sense his theory of free-market society is indeed a critical theory in the sense expounded by Geuss (1981: 76), i.e., a theory which satisfies condition “(C) that the transition from the present state to the proposed final state can come about only if the agents adopt the critical theory as their ‘self-consciousness’ and act on it.”

Bottom-up Critical Theory, however, cannot remain content with this selective focus on one critical theory. Indeed, a society in which everyone is a Hayekian—or, for that matter, a Marxist or a Rawlsian—is one very special outcome of the process of critically minded interaction. Thus, what necessarily has to precede any focus on a complex *market system* is the focus on a complex *critical-interaction system*. This system can—but isn’t simply “bound to”—generate a dynamic path whose steady state, stable or unstable, may be a complex market system. One of the conditions for this is certainly that, along the dynamic path, a majority of critically minded agents come to believe that being a Hayekian economic agent is the right way to criticize their current economy, whatever that economy is at given points along the path.

For that to be the case, we would have to have the following dynamics. As the actual economy approaches the Hayekian market-society ideal, either (i) most of those agents who are still skeptical of it would have to shift from critical acceptance to reflected adhesion, or (ii) they should no longer, despite a sustained critical acceptance, have any concrete possibility of harnessing their complex interactions with others so as to keep the system clear of increasingly Hayekian arrangements. Thus, as befits a complex adaptive system, the dynamics of critically minded interaction will always be strongly *path-dependent*. An early shift of a critical mass of people to Hayekian doctrine, or to Marxist or Rawlsian doctrine, may create hard-to-reverse tendencies toward the realization of one of the critical models initially in circulation. This, in turn, may make it increasingly difficult for dissenters to do anything else but “play along” while experiencing their critical acceptance as an increasingly sterile inner tension and frustration.

The self-destruction of cognitive freedom

Clearly, once one has understood this sort of dynamics—and, to repeat, something like it is simply indispensable in any liberating economy—one realizes that there are two key parameters to keep an eye on when orienting or harnessing complex critically minded interactions: first, the *variety* of critical viewpoints circulating in the economy (Axelrod and Cohen 2000: 32–61) and, second, the ways in which radically opposed viewpoints can be allowed to *interact* in the economy (Axelrod and Cohen 2000: 62–116).

Under appropriate conditions, critically rational economic interactions could gradually generate an economy in which most of the important “nodes” in the network adhere to a given critical theory of society c^* , which will then gradually become self-realizing along the dynamic path of otherwise “free” interactions.

This is precisely why, in addition to being a brilliant social theorist, Hayek was also a shrewd political activist. Keith Dixon (1998: 18–39) has retraced his attempts—most notably through the creation of the Mount Pelerin Society—to harness social complexity by enticing an elite of key “nodes” into his own personal vision of a “free”-market economy (see also Ebenstein 2001: 140–6). There is a key difference between this kind of activism and the brutal repression of dissent in, say, Stalinist communism. The latter used a completely degenerate form of harnessing. Stalin actually broke up interactive complexity by outlawing dissent from a narrow set of “official” doctrines, thus making the emergent *Esprit Critique* into a non-emergent, self-decreed *Esprit de Corps*. In his activism aimed at key actors and politicians, Hayek was trying to harness complexity in a more subtle way. This doesn’t, of course, exonerate his method from critical scrutiny. Hayek wanted to *induce* (rather than decree) significant losses of variety and losses in interactive resources because he believed that once everyone was a Hayekian continuing to pursue variety was futile and even dangerous. We know it’s a short way from this idea to the quasi-Stalinist measures of the McCarthy era.

Viewing the economy as a complex adaptive system in which critically minded individuals interact thus allows us to see what are the key differences (in terms of *ex ante* principles), but also the key similarities (in terms of *ex post* outcomes), between the harnessing of complexity as complexity-destruction and the harnessing of complexity as shrewd manipulation.

The path dependence inherent in critical-interaction dynamics suggests an additional dimension of a genuinely liberating economy. Over and above simply *permitting* interactions between critically minded individuals, it should endow itself with *anti-monopoly institutions* designed to ensure that—in formal parallel with the mainstream economic argument for anti-trust laws—the society’s *Esprit Critique* will emerge from an interaction between a *sufficiently large variety* of critical theories. As Axelrod and Cohen argue, each complex adaptive system possesses its own specific mix between “exploration” and “exploitation.” Too much exploration distracts agents from exploiting existing acquisitions, but too much exploitation detracts agents from further exploration. Think tanks and ideological agencies of all sides (see, for example, Smith 1989; Grossman and Helpman 2001) have a systematic bias toward exploitation—of the potentials of their own preferred doctrine—and away from exploration—of alternative doctrines which would jeopardize the domination of their preferred one. This actually provides one way to describe Hayek’s paradoxical existence. He spent his life arguing in *favor* of industrial-market society’s explorative

potentials, but this led him to militate in high places *against* intellectual exploration of what he conceived of as “wrong” alternative doctrines. (The same is true of many other intellectuals, on the Left as well as on the Right.)

Can critical instrumental rationality be taught?

What has just been said about path dependence might go a long way in explaining the often unexpected tensions thrown up, in academic as well as political circles, by methodological discussions.

The acuity of the recent French crisis surrounding the teaching of standard economic theory, as well as the acrimony of some of the ensuing debates centering around the controversial label of “post-autistic economics” (see Fullbrook 2003), seem to the untrained eye to be rather exaggerated, and a matter of a few overblown egos clashing into one another. In fact, as in any complex adaptive system which has settled into an *unstable steady state* and therefore constantly hovers around a menacing *critical threshold*, the promoters of the currently dominating mainstream teachings see clearly that their numerous ways of harnessing the system’s complexity to their doctrinal benefit (through journal networks, prizes, particular self-perpetuating “standards of the profession,” and so on; see Axelrod and Cohen 2000: 117–51), may be put in jeopardy by an excessive promotion of “methodological criticism” and “alternative schools of thought.”

In fact, the teaching and/or *de facto* dissemination of non-mainstream theoretical frameworks will, at all times and independently of which framework has currently been brought to the fore by path dependence, have a tendency to weaken path dependence and to push the system’s acquired steady state (i.e., the dominant methodological and/or ideological framework) on the verge of instability. Tensions constantly build up in the system as one view becomes dominant, and are occasionally released as other alternative views acquire a larger share of attention. This crucial property of economics as an unstable complex adaptive system can be put forward as an additional centerpiece of our present analysis. The dynamics of a complex adaptive system with critically rational agents is frequently such that along its path either (a) one theory of society is rising to dominance through path dependence, or (b) alternative theories are gnawing at the dominant theory and threatening to destabilize its dominance. The majority of destabilizations will not jeopardize the dominance, but occasionally a large enough destabilization may cause the dominance to vanish, and the complex interactive process may enter a new path-dependent rise to prominence. *Thus, the system is usually in a regime of “self-organized criticality”* (Bak 1996; Ball 2004: 295–300).

It is essential to realize that this self-organized criticality in the “space” of critical theories makes sense only if there are critically rational agents seeking to equip themselves with critical theories. In the absence of critical

rationality, the system's "tension" drops to zero and we go from criticality to stability. An ominous corollary follows: if you want a particular critical theory of society, say c^* , to become dominant and then to go unchallenged, you have to succeed in doing at least two things:

- (a) As long as c^* is not yet dominant, identify critical reflection with the task of comprehending and mastering c^* .
- (b) As soon as c^* has become sufficiently dominant, disparage all critical reflection which does not use the language, axioms and assumptions of c^* .

Such a strategy was certainly part of Hayek's own agenda. It does not often work perfectly—and Hayek's own failures are an illustration—because interaction-based, embodied, and enacted critical reflection has more tricks up its sleeve than the above two-point strategy assumes. *Critically lived experience*, especially the reflected experience of suffering, of social frustration, and so on, has a knack for destabilizing even the most solid indoctrination. Yet this twofold strategy is constantly available to well-meaning individuals, or groups of them, who (like Hayek yesterday and many mainstream economists today) feel their way of critically envisaging society should be promoted to the exclusion of all others.

One straightforward, but also notably unstable, strategy for countering this hegemonic tendency is *to make critical rationality itself an object of widespread teaching and practice*. In addition to teaching more than one view of why and how society should be improved, individuals should be taught to critically reflect on whatever experience they are living through, to locate the economic factors that underlie that experience, and to shape and reshape their critical view on the economy by constantly interacting with other similarly minded individuals. As I explained in Part II when I argued in favor of an economy inhabited by earnest perspectivists, in this endeavor interactive probing individuals should not be deterred by what William Brock and David Colander have called the "ignorance argument":

The ignorance argument is the following: the economy is a self-organized system that is beyond our formal modeling capacities; it has emerged through a complex set of interactions. To think that we can actually positively affect something so complex as the market in a positive way is hubris.

(Brock and Colander 2000: 82–3)

This argument indeed applies to the concrete totality of the actual, ongoing social process, but it doesn't apply to the individuals' theoretical models as partial totalities. These may very well be non-complex or sufficiently linearized and simplified to be tractable—although, of course, they don't have to, as when an individual agent uses Epstein and Axtell's (1996) *Sugarscape* model as a guide for harnessing his actual economy's complexity. So

arguing against individuals' forming critical theories of the economy on the basis of this ignorance argument is not a valid move. However, what is true is that the *Esprit Critique* that emerges from their interactions, and that acts as a guide for their revisions of their critical viewpoints, *is* subject to an ignorance argument. It would indeed be hubris to think that an agent or group of agents can affect something so complex as their economy's *Esprit Critique*.

Now, suppose an agent or group of agents were to shape the prevailing *Esprit Critique* by fiat. Suppose, for instance, that some group of agents (e.g., economists) were to decree that the axioms and assumptions of mainstream economics are the only "really right" vocabulary to formulate a critique of the economy, and that academic positions should not be accessible for those who don't subscribe to this view. This group would be at least as totalitarian as any group of agents who, in the narrowly Hayekian market society, would want to shape the price vector by fiat. This is because, in any liberating economy, the *Esprit Critique* as an emergent phenomenon is part of the concrete social totality, just like the actual ongoing economic process (whether it be a market process or something else).

The free-economy economist as "consultant"

What emerges from our discussions is a rather classical, but nowadays strangely forgotten, function of the economist (see Lindblom and Cohen 1979). She tries to acquire an *overall vision* of economic organization and to use this vision not only to explain (since explanation *strictly* for its own sake has little more value than, say, a Japanese *haiku*) but also to assist one or several agents in overcoming the possible obstacles which they encounter in their attempts to harness social complexity, because of the *partial vision* they spontaneously adopt.

The firm-level counselor as well as the planning-agency macro-econometrician and the university professor target their theoretical knowledge and its practical implications at a *solvent audience*, i.e., a subset in the population of agents who "demand" that knowledge and are willing to spend time, money, or other resources to "acquire" it. In that sense, any social theorist is a "consultant." Her overall vision is always intended for a certain audience endowed with what Habermas (1965) calls "knowledge interests." These are motivations for acquiring knowledge about the economy in order to use it within the economy's ongoing process. In that sense, too, as indicated in the definition of harnessing given in Chapter 7, any theorist is "emancipatory" in a more or less narrow sense.

This means that, in a very general sense, a liberating economy would be an economy in which all economists would explicitly experience themselves as consultants to certain categories of the population. This is the rationale for research in economics but also, equally importantly, for the teaching of economics. The economist, as I argued earlier, always draws his ultimate

legitimacy from some *implicit mandate* that emanates from the population of economic agents. The economist is an economic agent who, among other things, makes a living from providing complexity-harnessing resources to this or that subset of the population. If she weren't, who would pay high tuition fees to attend economics classes at universities or *grandes écoles*? Why would public money be devoted to financing economics education at the secondary school, or even the primary school, level? *In an economy inhabited by critically rational agents, this sort of implicit mandate can't just remain implicit; it has to be made explicit in the very name of critical rationality.* So let's see what sort of "consultants" economists can be.

Opportunistic consultants

Let's focus first on opportunistic harnessing—which, as we saw in Chapter 7, is the main area for which Axelrod and Cohen's (2000) book was initially written. This allows me to characterize a first type of economist, which I want to call the *opportunistic consultant*. She does economic theory with a view to constructing an overall view of the economy's functioning "as it is." Hence, she offers her audience an *explanatory model or theory*, which we will denote by " x ." Simply, x is a "degenerate" subcase of c , where the theory is explicitly aimed only at describing the way the economy works "as it is." She orients her non-critical, explanatory theory x toward a number t_x of "target audiences" which can put together sufficient resources for the consultant to be able to sustain herself, and are asking for decision-making instruments to help them maximize their personal freedom as they conceive it within the existing economic system. Thus, both the opportunistic consultant and her audience use an unreflected, intra-systemically coherent notion of freedom.

The parameter t_x is obviously central. Let N be the number of agents in the economy. Let $P = \{P_1, P_2, \dots, P_G\}$ be the partition of the economy according to the G types of conceptions of freedom. Old-style Marxists would have termed these "class interests," with G in the order of 3. The opportunistic consultant could address her theory only to that subset of the population—say, classes 2 and 3 of capitalists and rentiers—who, contrary to the proletarians of class 1, conceive their freedom in a way that is completely compatible with industrial capitalism. The capitalist wants to know how to maximize the extraction of surplus value; the rentier wants to understand how to protect the value of his assets. Both of them are clients for a theory of capitalism "as it is," in order to understand how to harness it in favor of their spontaneous, intra-capitalist conception of their freedom.

However, that is only one possible way of partitioning the population. In the most general case we could also have $G = N$, i.e., there are as many types of conceptions of freedom as there are individuals; this would be the position of subjective-preference theorists, among which mainstream economists preoccupied with individual-preference-based measures of freedom

(see, for example, Sen 1993b; Laslier *et al.* 1997). To be an opportunistic consultant, the mainstream economist would have to justify why any citizen in a genuinely liberating economy would have to learn mainstream economics. (They usually do this by appealing to “science.” But, as we have seen, none of the agents in the “scientific” models are even able to learn any “science.”) But not every economist assumes $G = N$. Many management consultants, for instance, use theories tailored for specific subsets of partition P .

The *selectively opportunistic* consultant is the one for whom there is a proper subset K of the partition P such that $t_x = \#(P_K)$. This type of opportunistic economist addresses her theory x to one class (if K contains one single element of P) or a set of classes (if K contains several elements of P). To signal this more explicitly, let’s add a superscript to the notation and write her theory as x^K . This means that x in fact serves as a tool for opportunistic harnessing for a subset K of the population. When Axelrod and Cohen (2000) direct their book at managers as a tool for reorganizing the incentive structures they impose on their workers, they might be described as offering a selectively opportunistic theory of social complexity. The same is true of the “bourgeois” economist who sees as her main target audience the ruling class of a bourgeois state, who will want to know how to steer the mechanisms of capitalism so as to satisfy the demands of their capitalist and rentier constituency.

The *universally opportunistic* consultant is the one who believes his descriptive theory shouldn’t serve any particular interest but, rather, should serve the “liberation” of the economy as a whole—understood as liberation within the general confines allowed by the economy’s current functioning. This step is frequently called for by those economists who wish each citizen to acquire a solid “economic education,” to be more “economically literate” in order to better “understand” the world around them and to be able to better “adapt” to its mechanisms and imperatives (see, for example, Lietz and Kotte 2000; Fitoussi 2001). It was, in effect, what motivated the Parisian students’ protest against non-realistic models, and much of “post-autistic” economics is in fact committed to such a universally opportunistic stance of “understanding capitalism” (see, for example, Stretton 2000; Bowles *et al.* 2005). This sort of economist will offer a theory x^P , which describes the economy in the same way regardless of the audience, so that $t_x = N$.

Thus, the universally opportunistic consultant offers each individual—rich or poor, boss or worker, etc.—the *same positive* model that takes into account current social positions as observed by sociologists, clinical psychologists, economists, and so on. All members of the system should have the same description of the system. The underlying idea is that any economic agent who is taught the explanatory model x^P will subsequently be able to use that knowledge in order to *maximize her own unreflected, intra-systemically coherent notion of freedom*, given similar attempts by all other society members. In other words, the universalistically opportunistic

consultant wants all agents to know the game they're playing in, so that they can all make the best of it.

Rational expectations theory is the only truly consistent shape this approach can take. In the more general case, the economist can't possibly, in actual fact, reach each and every citizen. The universality she offers is, *of necessity*, a picture of the economy transmitted to a finite number of individuals, each of whom therefore carries this particular theory around as a partial totality on which he acts. In the most general case, none of the theories taught as descriptive will be able to *actually describe* the ongoing economic process. This would be the case only if, first, every single economic agent had been taught the same theory and, second, acted on it in a way that would allow that theory to become self-realizing through the agents' interactions. This is what Rational Expectations postulates, without modeling the underlying cognitive process that led to such a steady state. How factually wrong descriptions of the whole society can become true in the long run was one of the main "underground" preoccupations of Hayek, and one of the main motors of his—as we saw, paradoxical—drive toward political militancy. Let's see how Hayek and his latter-day cognate, Fukuyama, envisage the dynamics of economic ideas in the economy.

The dynamics of theory diffusion and the Hayek–Fukuyama theorem

Suppose there are Σ schools of positive social theory, so that at time t there exists a set $\{x_1(t), \dots, x_\Sigma(t)\}$ of explanatory theories. Each individual i studies a certain number of them and decides the action he will take within his economic context. In a very general and tautological way, i.e., without making any specific assumption about the rationality of each agent (which may or may not be in congruence with the model he has studied and adopted), the individual will carry out a vector of actions $\mathbf{a}_i(t) (\{x_1(t-1), \dots, x_\Sigma(t-1)\})$ if we assume that he acts as a function of the overall views of society acquired in the previous period by *all* agents including himself. Since all agents do the same, the actual state of the economic system, $S(t)$, that will emerge will be a function of all theories in circulation: $\{x_1(t-1), \dots, x_\Sigma(t-1)\} \rightarrow S(t)$.

Let's assume that, as a general rule, each "school" may or may not adapt its theory after the realization of the state of the system (for instance, through a Popperian confrontation with various empirical data). So for each school $\sigma = 1, \dots, \Sigma$ there is a specific revision function: $x_\sigma(t) = \varphi_\sigma(S(t))$. Some schools or models may be "dogmatic" or ahistorical, so that for some σ we may have $\varphi_\sigma(\cdot) = i(\cdot)$, an "identity function" which indicates that the theory of type σ remains invariant across time, no matter what the changing states of the economic system happen to be. Which functions φ are taken as acceptable at any given period, and which ones are excluded, will depend on that period's criteria for a valid and legitimate "positive" model of the economy. This may be Popper's criterion of scientificity, or

Kuhn's or Lakatos's, or some other criterion, depending on the state of methodological discussion among economists.

The notion of time I have introduced here is quite simplistic, but it turns out to be sufficient in order to define a major figure in the history of Western ideas, taken from the Hegelian tradition and carried into the twentieth century by, among others, Hayek and Fukuyama:

The End of History. This is an empirically reachable fixed point in the dynamics of states of the economic system. It is a theory x^* such that $\{x^*, \dots, x^*\} \rightarrow S^* \equiv x^*$. With a bit more conceptual sophistication, this fixed point can also be seen as a stochastic variable with mean $E(x^*)$, so that more generally we have $\{E(x^*), \dots, E(x^*)\} \rightarrow E(S^*) \equiv E(x^*)$.

What this means simply is that, over time, all the relevant “nodes” in the system would end up sharing the same representation of the economy and that this representation, as a result, would become fully *self-realizing*. This corresponds to Hayek's fantasy that, if all important decision makers in the world could be made into Hayekians, the actual economic system would gradually converge on Hayek's preferred theory, which would become self-realizing. Crucial to this is that no agent other than the enlightened elite reflect on the economy at all—or, which comes to the same, that all agents gradually come to accept that market suffering and all other difficulties they experience in free-market capitalism are for the best. “Local” knowledge is then, *under that counterfactual unanimity assumption*, all that needs to be exercised by the agents.

The “rest” of history, the time after the End of History, would then merely be a white-noise trajectory *without radical fluctuations* of $S(t)$ away from the ahistorical mean $E(x^*)$, which is Hayekian free-market capitalism. This allows us to make sense of Hayek's position, later taken up by Fukuyama, according to which, through “cultural evolution” one particular model of economic organization would emerge historically as the sole model internalized by all individuals, and hence the only self-realizing model:

Hayek–Fukuyama theorem. There is a unique x^* and it is the set of institutions called the neoliberal market economy.

So what Hayek is effectively offering us in his own preferred theory, as discussed in Chapter 4, is a *counterfactually unimistic scenario* of what could occur if (as he wishes were the case) everyone in the economy were already Hayekian. From Hayek's perspective, the fact that x^* is unique also makes it *normative and rational*, so that he considers it irrational to publicly teach alternative models. This attempt to teach only conservative economics will, by definition, hasten even more the realization of the fixed point through the well-known mechanism of the self-fulfilling prophecy. My two earlier points about path dependence apply to Hayek. First, as long as conservative

economics is not yet dominant, identify critical reflection with the task of comprehending and mastering conservative economics. Second, as soon as conservative economics has become sufficiently dominant, disparage all critical reflection which does not use the language, axioms and assumptions of conservative economics.

This shows that Hayek is not a universalistically opportunistic theorist. Rather, as we repeatedly argued since Chapter 6, he is actually a *critical* theorist. He believes in the technical and moral, but also cognitive superiority of the neoliberal market economy, so that he is an advocate of bourgeois criticism as characterized in Chapter 2. The notion of freedom he promotes is intra-systemic but reflected: he claims it is not satisfied in industrial capitalism “as it is,” and that it calls for certain critically oriented harnessing actions—to wit, his own efforts to influence key decision makers in the halls of power. His arguments are directed at these men and women, who usually want to leave their marks on History. In doing so, Hayek is cunning enough to justify the superiority of neoliberal capitalism by moving ahead mentally to the “end of History,” i.e., to the steady state of a dynamic process of cultural evolution, and then “retrojecting” this end-state argument back into the present. It seems to have worked on Margaret Thatcher as well as a few others.

In other words, Hayek seeks to demonstrate that any future radical social transformation is doomed to failure unless it simply enacts his preferred x^* . In order to show this, he needs to display through teaching and public pronouncements that the neoliberal market economy is self-fulfilling and that, *therefore*, it would be rational for any “elite member” to work in practice toward realizing it as quickly as possible. This, he hopes, would realize it *de facto* in our minds and in the facts, so that any radically transformative horizon apart from x^* would, indeed, henceforth be closed. As a consequence, any other model which we might want to teach the agents would be culturally and economically regressive, and hence irrational.

Critical consultants and the Horkheimer–Marcuse theorem

But even if Hayek and Fukuyama happened to be right (which I personally doubt to the highest degree), intellectual integrity would require them to demonstrate their thesis using a procedure other than the mere projection into a unique and virtually predetermined “horizon.” To put it differently, they should demonstrate

- 1 that critically rational agents would gradually converge on the neoliberal market economy while having had, along the way, access to a significant variety of other models *also* presented to them as emancipatory options,

and

- 2 that the neoliberal market model gradually emerged within a complex adaptive economic system in which the agents took actions geared toward the CA-critical and OS-critical harnessing of complexity.

Only then might Hayek's fixed-point argument really hold water, like any equilibrium argument that abstracts from the process of dynamic convergence.

Therefore, we need to see what role the economist could play in the critical-learning process discussed at the end of Chapter 8. This allows me to characterize a second type of economist, the *critical consultant*. We already encountered him earlier under the guise of Horkheimer's "oppositional intellectual." As we saw in Chapter 8, the critically rational agent is endowed not only with an explanatory model of "the way the economy is." She doesn't simply have an ordered list of models $\{x_1(t), \dots, x_\Sigma(t)\}$ reflecting her "economic education" and her own "preference" about how to positively describe the economy. She possesses a *critical theory* of the economy containing at least two elements: the ideal of an emancipated society, S^* , and the set of means $b(t)(S^*)$ to be implemented at period t (i.e., in the state of society $S(t)$ with its institutions, its rules of economic interaction, and so on) to move in the direction of S^* . Let there be M schools of critical theory in society, denoted by the index $m = 1, \dots, M$ (which is totally distinct from the index $\sigma = 1, \dots, \Sigma$ used above to designate the schools of positive theory). The m th critical theory can be written as $c_m(t) = \langle S_m^*, b(t)(S_m^*) \rangle$.

The critical consultant does theory in order to convey an overall view S^* of social possibilities, and hence a *critical theory* $c = \langle S^*, b(S^*) \rangle$ that deals with the current economy S only to see whether or not it requires modification. She orients her theory toward the "target audience(s)" which has (have) an interest in S^* being realized and has (have) a sufficient capacity to mobilize the corresponding means $b(S^*)$. The critical consultant not only offers her audience a single universal theory (as does the universally opportunistic consultant), but that she includes in that theory two crucial elements that make it a *critical theory*: on the one hand, a notion of freedom, and hence of emancipation, which is potentially distinct from each agent's "spontaneously conscious" idea of what it means to be free; on the other hand, a theoretical-practical judgment as to the means required in order to implement the corresponding emancipatory ideal. By contrast, the universalistically opportunistic consultant teaches a general theory and then leaves each agent to use that theory in whatever way he deems fit given his "spontaneous" conception of freedom, which can only be unreflected since it flows out of the agent's actual position within the current system. The critical consultant *de facto* will address, and be heard by, only that subset of agents who *because of their lived experiences within the current system* feel attracted by the reflected notion of freedom she is offering in her critical theory. This is what it means for these agents to become *cognitively empowered*.

In that particular sense, the critical consultant is actually closer to the selectively opportunistic consultant. Both of them target their theory at a subset of the population. Such a similarity shouldn't surprise us since the agents' critical rationality contains an instrumental component. However, what differs fundamentally is the end toward which they use that rationality, and the associated means of action. The agents targeted by our two consultants have quite distinct "knowledge interests," to take Habermas's expression. The opportunistic consultant caters to their opportunistic adaptation. She helps them to answer the question, "How can I be freer in the system as it operates?" The critical consultant caters to their critically minded adaptation, which as we saw is liable to involve rational non-conformity and conscious disadaptation. She helps them to answer a different question: "How could 'our' system become a better one, so that 'we' are freer than before?"

Thus, the critical consultant also addresses a subset K of P , but now K is such that $c_x = \#(P_K)$. In other words, this type of theorist addresses her critical theory c to one class (if K contains one single element of P) or a set of classes (if K contains several elements of P). To signal this more explicitly, let's add a superscript to the notation and write her theory as c^K . The theory c in fact serves as a tool for critical harnessing for a subset K of the population. When Horkheimer (1937a) addresses his work to proletarians as a tool for overthrowing the economic logic imposed on them by the capitalist class, he is offering a critical theory to harness social complexity, where $K = \{\text{proletariat}\}$ and $b(S^*) = \{\text{proletarian revolution}\}$. When Hayek (1944) addresses his work to the rulers of Western democracies and to entrepreneurs as a tool to ward off central economic planning and to implement radically free-market, pro-capitalist policies, he is offering a critical theory to harness social complexity, where $K = \{\text{Western rulers, entrepreneurs}\}$ and $b(S^*) = \{\text{anti-communism, market liberalization}\}$.

So as I emphasized in Chapter 6, both Horkheimer and Hayek clearly saw themselves as critical consultants to quite distinct parts of the population. Horkheimer hijacked the expression "Critical Theory" in order to designate one specific critical theory, i.e., his brand of materialist–dialectical Marxism. In the framework of bottom-up Critical Theory, however, we cannot accept such conflation. We have to envisage the complex, interactive dynamics of *all* the critical theories together within the critical-learning process. Each critical theory may be viewed as evolving over time in a manner analogous to the positive theories, but according to quite distinct mechanisms as to what regards their link to empirical reality. Let's write this as $b(t)(S_m^*) = \psi_m(S(t))$. This means that, in the general case, b , S^* , and S adjust mutually. The dynamics has two speeds. In the short and medium run, the critical consultant is likely to adapt her critical theory by adjusting the *critical-harnessing actions* she thinks can be implemented given the current state of the economy, while keeping constant the emancipatory ideal S^* to be attained. As we saw in Chapter 8, such actions will most frequently be

collective actions, so that the CA_i variable has to be supplied by the economist to the agent. In the longer run, the critical consultant may actually also alter the ideal S^* , for instance if repeated failures to approach it show that it is no longer a feasible ideal. However, some radical critical theories may never modify their S^* , and simply claim that any distance $d(S, S^*)$, however large and perhaps even growing, is indicative of the alienation inherent in S . Which functions ψ are taken as acceptable at any given period, and which ones are excluded, will depend on that period's *Esprit Critique*, C_t .

Suppose each critically rational agent shapes his reason for acting by adopting the critical theory of a certain school p . Then, the action vector of individual i will be $\mathbf{a}_i(t)(\{c_1(t-1), \dots, c_M(t-1)\})$. In other words, each agent acts after having listened to, studied, and confronted various critical theories of the economy, which by itself requires time and economic resources. As a particular case, an agent may be said to have a *radically critical ideal* if $b(t)(S_m^*)$ contains OS-critical harnessing and if this agent subscribes to theory $c_m(t)$. (Again this does not, of course, mean that anyone's intended radical transformation will be immediately successful or, indeed, that it will ever be.) As previously, the actual state of the economy can be derived by composition from the various individual actions: $\{c_1(t-1), \dots, c_M(t-1)\} \rightarrow S(t)$.

A very particular case of an emancipation-oriented society is the case envisaged by Horkheimer and Marcuse, which postulates essentially three things:

Horkheimer–Marcuse theorem:

- (i) There exists *one* critical theory of society, $c^{**}(t)$, which would encapsulate the right emancipatory ideal S^{**} and the means adequate in each period, $b(t)(S^{**})$, which would include radically transformative episodes.
- (ii) S^{**} is a fixed point: $\{S^{**}, \dots, S^{**}\} \rightarrow S^{**}$.
- (iii) If S^{**} were realized, the emancipatory theorist could leave the floor to the universalistically opportunistic theorist, who could take S^{**} as a descriptive model for social and economic education.

Here again, as with Hayek earlier, we have a scenario in which the whole critical-learning process is assumed to converge on a single theory. S^{**} orients agents' actions and, once the critical description inherent in S^{**} has become empirical reality, there is no longer any need for additional theoretical work. Once arrived at the steady state, all agents can stop being critically rational and simply live within the logic of the system S^{**} . The economist himself doesn't need to do critical theory anymore, and may even become an opportunistic consultant.

Compared with the Hayek–Fukuyama theorem, the question here is whether we will, in addition, have $S^{**} = x^*$. In other words, will the cognitive

process converge on the neoliberal market economy? Those who answer affirmatively merely ground their opinion in a different critical theory from those who answer negatively. History up to today seems to vindicate Hayek and Fukuyama. There currently seems to be a trend toward liberalization and “free” markets, but that trend may simply be momentary. Since a critical theory is never mechanistic and always includes means to move in the direction of the desired emancipation, the “verdict of History” is never eternal. People’s accumulated experiences of suffering in near-neoliberal, or at least strongly liberalized, market economies may spark new rounds of OS-critical, or at least CA-critical, collective action. In any case, the momentary prevalence of neoliberal ideas can never be grounded in the Hayekian argument that any emancipatory ideal distinct from x^* would be intrinsically irrational.

The bleak utopia of an economic world in which all economists are, and forever remain, merely opportunistic consultants is a very unstable steady state. In liberating economies peopled by critically rational agents, the demand for multi-angled critical consultancy is never extinguished for long. We shouldn’t build our economics as if it were. If we do, sooner or later our actual, ongoing economic process will lose its capacity to be self-criticizing. Critical Political Economy aims to avert this threat to our cognitive freedom. It does so mainly by permanently reaffirming the possibility for non-mainstream approaches in economics to claim the right to contribute to critical consultancy, on a par with whatever mainstream approaches are currently considered to be “orthodox.” This doesn’t immediately single out one or the other “heterodox” paradigm as the better one, but it allows us to see why a “post-orthodox pluralism” has to be maintained as a permanent reality. Chapters 10 and 11 aim at providing this alternative utopia of a truly self-criticizing, hence truly liberating, economy.

10 Free-economy economics

An economics that reflects on itself

Part I has highlighted the main difficulty with mainstream economics. At no moment does the individual agent adopt a reflexive distance with respect to the game rules in which he is interacting with other model-using agents. Their relationship to the game situations and to the learning they undergo in these situations is non-reflexive. After my discussion of Parts II and III, such non-reflexive modeling can no longer be upheld. Critically rational agents have the capacity of stepping back critically not only from the resource distribution and from the mechanisms that generated it, but also and most importantly from the assumptions made by economists to represent the agents' rationality and their interactions. In fact, my conception of a cognitively empowering economics entails a metaphorical dialog between the theorist and the agents she is modeling.

For heuristic purposes, let's briefly go back to my case study of Sen in Chapter 2. According to my idea of a metaphorical dialog, the agents will want to "communicate" to the theorist their desiderata concerning the pairs (s^*_i, ω^*_i) they individually consider to be desirable and, also, concerning the means they intend to implement so as to approach their ideals. Once each individual is assumed to be able to express a preference between a competitive equilibrium *attained within* $C(\omega_0)$ and a competitive equilibrium *attained within* $C(\omega_1)$, he must also *in principle* be assumed to be able to express a preference between a *competitive equilibrium* attained within $C(\omega_1)$ and any *alternative pattern of distribution of resources* attained within $C(\omega_1)$. Such agents will therefore be interested in knowing alternative, non-market mechanisms, such as generalized self-management or planning with absence of private property of endowments, in order to be able to form their judgment, whether favorable or unfavorable, about the market mechanism.

Suppose for just an instant that their judgment were favorable. This may be because they have all been taught that the Walrasian model yields the best results from the point of view of "social optimality." Suppose also that the agents have been persuaded to subscribe to Sen's argument about the political infeasibility of a drastic redistribution of initial resources. One

consequence would then be the following. They would all *voluntarily and knowingly* transform themselves into Walrasian quasi-monads, simply because in their own critical judgment it would correspond to the best way of organizing their own economic interactions. The crucial question, of course, is how likely it is that critically rational agents will recognize themselves in a teaching of economics which represents them as the contrary of what they are—namely, as selectively open quasi-monads obeying an unreflected, pre-inscribed law of coordination. In other words, *how much reflexive appeal* would Walrasian theory and its vision of agency have on an “educational market” populated by critically rational agents seeking to rank initial-endowment bundles and alternative economic systems?

The very same question can obviously be asked of mainstream complexity economics and its representation of adaptive automata-individuals. How much reflexive appeal would such a body of theory have to critically rational agents? Such agents, remember, are neither “institution takers” nor “rationality takers,” and they have enough capacity for judgment in order to ask themselves what kind of agents they’d like to be in what kind of economy. As a result, they have the ability to engage in dialog with those specific agents—the economists—whose work in the economy is to draw up theoretical representations of the economy. Or, at least, anyone doing economic theory should write her models *as if* she had “her” agents looking over her shoulder and commenting on the way she represents them, their alleged rationality and their supposedly preferred ways of interacting.

This sort of issue might seem outlandish at first, but in fact it flows directly from the logic of mainstream economics itself. A theory of rational human agency has to be able to go as far as *including its own basic assumptions and postulated mechanisms as objects of choice on the part of the agents which this theory itself posits as rational*. If this is so, the teaching of economics now becomes *an endogenous part of the model itself*. In a genuinely liberating economy with cognitively empowered agents, mainstream economics with its specific presuppositions can no longer view and present itself—because it will not be viewed by the agents in the model—as an unproblematic, “scientific” representation to be taught to everyone. Rather, it can only ever conceive of itself as a particular approach taught by certain agents, the academic economists professing these so-called “mainstream” presuppositions, offering themselves as critical consultants or as opportunistic consultants.

My purpose is certainly not to advertise a unique, “steady-state” economic theory that would satisfy the Horkheimer–Marcuse theorem or, for that matter, the Hayek–Fukuyama theorem. Nor do I intend to posit radical social transformation as the sole possible horizon for collective action. Far from it! *In fact, no Critical Political Economy can overreach itself and prescribe ex ante the mode of social change that will result from the interaction of critically rational agents*. What a self-critical economics does is *to force any theory that aims at emancipation to formulate its deepest*

presuppositions as if they had to be explicitly validated by critically rational agents who “live” inside the theory itself. Such deep self-reflexivity is far from present in current economics.

The question is therefore not whether some of us, as economists, “like” or “dislike” mainstream economics. The question, rather, is whether highly reflexive and critical individuals, having studied intensively (through a rational allocation of time and intellectual as well as material resources) several alternative conceptions of economic interaction and several alternative conceptions of rational action, can deduce in a non-self-contradictory manner that it is better that everyone *consciously and deliberately transform themselves* into quasi-monads or automata devoid of reflexivity. By *making themselves into* such entities, these individuals would in addition—by the assumptions of the Walrasian anthropology—forsake any future possibility of consciously altering their modes of interaction. The move would therefore be akin to a sort of voluntary collective lobotomy. Is it at all plausible?

Only if it were, could a Walrasian conception of economic life emerge as an economics adhered to by “*Us, the People*” from our own best critical capacities, which we must therefore initially have been able to foster and cultivate. Obviously, it is *not at all* plausible, as anyone in his right mind¹ will readily realize and as I argued at length at the end of Chapter 3. This is the kind of rigorous self-criticism which Critical Political Economy would from now on impose upon the economist. Let’s now reflect on some of the more radical implications this would have for the economist herself, and her own theory of herself.

Economics as an intrinsically political discipline

While a significant portion of mainstream economics is nowadays post-neoclassical, the more standard rational-choice paradigm still has substantial heuristic influence. It pervades most of the constructivist, incentive-based approaches in both positive and normative economics that still dominates the teaching of economics in most of today’s economies. Now, this may be seen by some as a problem, since interactivity and nonlinearity are viewed as increasingly important. That is why, as we saw, complexity economics is now a central building block of mainstream economics. However, as we also saw, *regarding the neglect of agents’ critical rationality*, both complexity and pre-complexity (standard) economics share the same basic defect—and, in fact, complexity economics with its frequent forays into “bounded” rationality and automata, may actually be a regression compared with rational-choice theory, in which at least agents were endowed with a significant capacity for calculation which could be—but has not been—diverted toward critical reflection on rationality and the economy as a whole. Therefore, when inquiring about the future of critical rationality in economics, both standard and complexity economics stand on a par. So I’ll

be discussing elements of both here, without of course claiming that they coincide on all other counts.

When undergraduate students are instructed to “think like economists,” they are frequently induced into subscribing to a subset of what can be called an individualistic rational-choice sociology (see, for example, Rhoads 1985; Landsburg 1993; Arnold 2005; Winter 2005). By this, I mean essentially the theoretical meta-construct suggested by Gary Becker in his *Economic Approach to Human Behavior* (Becker 1976) and perfected by James Coleman into a global approach to social phenomena in his *Foundations of Social Theory* (Coleman 1990). Few rational-choice economists today could reject Coleman’s approach without thereby jeopardizing their own faith in the basic tenets of “economic reasoning” and the “economic method.”

Now, it seems clear to me that one of the main characteristics of a fully-fledged *method* is to be exhaustive. By this, I mean a threefold property.

- (a) A method has to aim at offering analytic tools capable of embracing the whole of its object-reality.
- (b) A method has to have enough reflexive distance from itself so as to be able, using these tools, to justify the ethical delimitations and the conceptual simplifications which it imposes.
- (c) A method has to be capable of modifying its analytic tools as long as this “reflexive loop” has not attained a fixed point.

Standard economics, it seems to me, has not yet reached this stage of methodological rigor. Nor has most of the rest of rational-choice sociology, for that matter. From what I have been arguing in this book, we can see that there is more than a slight risk that today’s mainstream economics will be recorded for a long time as *truncated*, *impoverishing*, and *non-critical*.

Three fundamental limitations of mainstream economics

Let me briefly rehearse these three features, all of which are derived from our previous discussions in Parts II and III.

- (a) Mainstream economics is a *truncated* contribution to rational-choice sociology. Just witness the ironical or downright hostile reactions that occur when you ask questions such as the following: In general-equilibrium models, shouldn’t we withdraw labor from the set of marketable commodities? Shouldn’t we, on the contrary, include in that list of marketable goods religious celebrations, hard drugs, slaves, or small children? Obviously, the reactions reflect the current state of the culture in which the questions are being asked. The economy’s *Esprit Critique* is constantly at work. But by that token, the cultural and moral delimitations involved (“marketing adult labor is OK, marketing small children is obnoxious”) should themselves be justifiable from within the

mainstream's theoretical set-up. There is always some ethical delimitation between what can be subjected to the logic of contract and what cannot, between what can be marketed and what cannot, etc. But if the theory itself is unable to explain these delimitations, it remains partial and cannot claim to be an explanatory, let alone a critical description of a free economy.

- (b) Mainstream economics is an *impoverishing* contribution to rational-choice sociology. Even if we look as charitably as we can upon the more recent advances in game theory and in “political economics” (Persson and Tabellini 2000), the fact is that in these models individuals use a brand of instrumental rationality which is either parametric or strategic. What is not currently part of the theory is critical rationality, i.e., the agent's capacity to critically reflect on the economy they desire and on the kind of economic relations they would judge more humanizing. But if the theory itself is unable to account for such crucial elements of agents' economic lives, it is bound to impoverish the theorist's explanation of phenomena.
- (c) Finally, mainstream economics is a *non-critical* contribution to rational-choice sociology. It has extended its theoretical models to successions of temporary equilibria, or even to a sophisticated notion of intertemporal equilibrium. It has gone even further and reduced the weight given to mechanistic notions of equilibrium and sequences of states, i.e., the weight given to thermodynamic metaphor, and moved towards more organic notions of autopoietic processes, i.e., towards non-Darwinian evolutionary biology. Thus, over the past few decades it has introduced into its models certain sophisticated cognitive and adaptive capacities. However, there is still one crucial thing it hasn't yet stopped doing, and can't stop doing lest it destroy the “economic method” itself. *The mainstream economist can never stop treating “her” agents like billiard balls moving around on a table which only “she” can see from above.* This is part of the positive heuristics which mainstream economists have been using up to today, *even when they have professed to be doing bottom-up economics.*

One paradigmatic illustration of this deep-seated option is H. Peyton Young's already discussed analysis in his *Individual Strategy and Social Structure* (Young 1998). By stressing the central importance of learning, he throws a bridge between the logic of independent agents and the logic of interaction. On the one hand, as we already noted, he shows

how high-rationality solution concepts in game theory can emerge in a world populated by low-rationality agents [so that] the evolutionary approach is a means of reconstructing game theory with minimal requirements about knowledge and rationality.

(Young 1998: 144)

On the other hand, he demonstrates “how complex economic and social structure can emerge from the simple, uncoordinated actions of many individuals” (Young 1998: 144). At first glance, as we saw, this seems perfectly in line with—though not as philosophically sophisticated as—Hayekian social theory. Now, Young (1998: 27–8) envisages four main learning mechanisms: natural selection, reinforcement, imitation and optimal response. Of these four, only the last two are really interactive, whereas the two former ones are closer to an independent reaction of each “isolated” agent facing a common situation that emerges from the whole set of interactions.

Regarding the two interactive mechanisms, I would call them *ultra-low density interactive mechanisms*. The reason is that neither the imitation of others nor the hypothetical calculation of what I would do if others did x (this is revealingly called “fictitious play”) require any strong social connections. Nor do they require any dense communication network. In fact, most ultra-low-density interaction mechanisms can easily be transformed into mechanisms with isolated agents, either through emergent phenomena such as fashion (see, for example, Ormerod 1998: 11–27) or through purely additive phenomena such as a publicly available list of agents having pursued “winning” or “losing” strategies. The actual part of real *intersubjective communication* is quite reduced or even nonexistent.² But in the end, regardless of how directly or indirectly they model interactions, all four cases provide *inherently uncritical* learning mechanisms. The actual part of real *critical reflexivity* within communication and also within interaction is also very small or even nonexistent. Cutting-edge evolutionary models such as Young’s have not yet integrated categories such as critical demystification, Socratic cohesiveness, rational non-conformity, or modes of complexity harnessing such as lever-point, voice, or exit.

This lack is, of course, a cardinal virtue of the model in Young’s own eyes, as it was in Hayek’s. Even in pretty sophisticated mainstream institutionalism where agents are somewhat heterogeneous, institutions emerge from myopic interactions and are therefore *instituted by no one*. Not only were they willed by no one *ex ante*, but they are also not rationalizable *ex post* by the agents, since none of them will ever have made use of the formal knowledge constructed by the theorist-modeler, who is himself not an agent of the model.

This goes to show again that, as I have been endeavoring to emphasize all though this book, in mainstream economics—even in the “cutting-edge” fringes of the paradigm—the only agent endowed with an overall vision of society and with a possibly critical stance towards it, the only agent who might eventually form a desire to change the overall logic of social existence, is the theorist herself. And she is precisely the only agent who, as far as I am aware, is absent from the model as a critically rational agent, a model she nevertheless teaches to the “others.”

This brings to mind a very clear-headed statement by mainstream economist Jean-Jacques Laffont, who in a recent book on *Incentives and Political*

Economy wrote the following. It echoes, in part, my own distinction between the opportunistic and the critical consultant:

Two types of political economy can be practiced: either as an authentic adviser to a ruling party, who looks for the policies which maximize the party's payoff given the economic and political constraints; or as an intellectual who proposes policies which take into account the economic and political constraints in maximizing long-run expected social welfare and which could be adopted as constitutional rules. The latter seems to be the only one available to independent economists who want to have a short-run impact on their society. This is the goal of a real political economy which integrates economics and political science. *It is not clear, however, that such economists will be taken seriously by the rest of society, since they claim to be benevolent and thus contradict their whole intellectual approach, which treats other agents as self-interested.*

(Laffont 2000: 5–6, italics added)

Is it critically rational to be a mainstream economist?

The central question, therefore, is the following. Is the truncated, impoverishing, and non-critical character of today's mainstream economics a critically rational choice on the part of the individual who adopts mainstream economics as her intellectual ambit and initiates other individuals into it? *Is it a critically rational choice to be an economist who writes models with uncritically rational agents?* Clearly, if mainstream economics is to stand as a self-consistent approach, the answer has to be affirmative. Indeed, the least one can do when practicing a theory of human agency is to apply it to oneself as a theorist, and also to apply it to the way one views the historical emergence of one's body of theory. Neglecting this *reflexive completion* of the mainstream project allows the mainstream theorist to gloss over the most radically political dimensions of her apparently neutral and "scientific" intellectual life. Quite a few contradictions can be brushed under the carpet and forgotten, with undesirable consequences for all involved: students, citizens, and mainstream economists themselves.

Imagine, for the sake of the argument, that one of your mainstream colleagues confides in you that she used to be, in her younger and less prestigious days, of Marxist–Leninist obedience but that she turned away from Marxism and towards economic theory and its methodological individualism because, as she puts it, "I believe in the fundamental freedom of the person." This is not an empirically absurd thought experiment. Clearly, this particular agent used a *choice* criterion, and the choice is clearly an articulated, *critically rational* one. It doesn't merely flow from either parametric or strategic rationality. The reason why this economist chose her career as she did lies in conviction and normative belief, perhaps even with philosophical

or spiritual foundations. And it is a fact that a large majority of notorious mainstream economists chose their discipline through a critically reflexive deliberative procedure. They wanted to “do good.” They wanted to “change the world.”

Of course, there is nothing wrong with this, at least as long as we don't shy away from the next question: *why assume that only the theorist possesses reflexively critical capacities* (see, for example, Favereau 2001)? As a matter of fact, she doesn't even assume it herself, since she teaches mainstream economics to others and publishes her research in mainstream journals for others to read. Thus, she is actually attempting constantly, through the spoken and written word, to recruit as many “adherents” as possible. But why should these people adhere to a teaching that is offered them, if not for reasons analogous to those which led the teacher herself to adhere to the theory she's transmitting? Apprehended in this way, the field of interactions between the economist and her “target audience” is always only a non-separable subset of economic interactions in general. The production of economic thought is an economic activity. The economist earns her living doing it, budgets are devoted to it, and it has effects on the real economy, as the rational-expectations school has accurately emphasized but as anyone who teaches economics believes is the case. If it weren't, we wouldn't teach economics.

The moral tasks of economic paradigms

As a result, unless mainstream economists are to slip into an intellectual and moral authoritarianism unfit for a discipline that nobly advertises its concern for “the fundamental freedom of the person,” mainstream economics should become *political* in a twofold sense. First, it should accept that it is part of *one type of sociology among many others*: the rational-choice type. It thus occupies a specific, limited place as one coordinate in a broad landscape of works and reflections, many of which compete with it on equal footing. Second, mainstream economics is more likely to become socially legitimate if it accepts the imperative of *subjective validation* by those populations—whether students or, for instance, unemployed workers—to whom it is taught and/or on whom it imposes particular consequences. For example, the principal-agent model in the standard model of the labor market, which is at the root of contemporary discourses on “flexibility,” cannot be genuinely “scientific” if it doesn't reflexively appeal to *any* agents currently operating on the labor market. All agents should have the ability to express their own critical judgment about how standard principal-agent theory describes them and about the way in which, as a theory of the economy, it opens up or omits crucial aspects of a better labor market. And some agents might see it as their own preferred description of what should be changed in the current economy. The question is always: *Who are the agents in the real, ongoing economic process who find a given theory reflexively*

appealing, and what does that say about the way in which that theory critically describes this ongoing economic process?

It may be that, in some particular cases, a policy measure can be taken independently of any theory, or on the basis of several, observationally equivalent, theories. Most frequently, however, contemporary expertocracy consists in designing policies on the basis of theoretical models about which none of the agents concerned has been allowed a judgment as to whether she *recognizes herself* in the behavioral and rationality assumptions made *about her* by the theorist. The theorist also, more often than not, omits to apply the same assumptions to herself (see Mäki 1999), at least regarding the reasons that led her to apply these assumptions to other agents.

This discussion leads me to suggest two moral tasks for all competing economic paradigms within the dynamics of Critical Political Economy:

- (I) Economics should be *historical in a self-critical way*. In particular, every economist should make as explicit as possible (i) why her particular underlying sociology should be adopted as *relevant* by the people to whom it is taught; or, in contrast, (ii) why the so-called “economic method” she proposes does not and should not include the mainstream economist’s own assumptions about herself, i.e., should remain short of being an *exhaustive* method. In either case, the economist should herself adopt a critically rational attitude. She should make explicit (iii) how the theory she purports to teach to others as the most relevant one has been shaped by the interaction between, on the one hand, her *own lived experiences within the economy* and, on the other hand, the *broad influences coming from the history of ideas*.
- (II) Economics should become *political in a democratic way*. (i) The adoption of this or that sociology or social theory should itself be subject to “*competitive*” and *public political debate between theorists and non-theorists*. (ii) Those economists who believe that this sort of choice could never be democratic, but should rather be left to experts, should *include this particular vision of rationality in their own theories*: distinct rationalities, rationally chosen to be distinct, for the agents *in* the theory and the agents *building* the theory. This particular political limitation of public debate ought, in turn, be submitted to the public debate.

Unless an economic paradigm satisfies at least these two broad consistency conditions, it cannot qualify as a theoretical framework that describes and analyzes a genuinely liberating economy, because it contains “blind spots” which prevent the agents’ full exercise of their critically reflexive capacities. Within the framework of critical-emancipatory realism I am advocating in this book, an approach’s failure to satisfy (I) and (II) above would be deeply troubling because it would indicate that some economists, despite their own best intentions, are unable to build theories (and hence models) that carry a force of empowerment and emancipation.

The pluralist ethos of Critical Political Economy

It is immediately plain that such a politicization of economics implies a strong degree of *internal pluralism*. The work of economists is bound to be a mix between the work of the universalistically opportunistic consultant and the critical consultant. And, as economic theories get to be increasingly perceived by the agents to whom they are taught as tools for rational criticism, the second function of the theorist will tend to take precedence over the first. Free-economy economics is a discipline that shapes and supports a plural field of economic reflection. Within such a plural field, as I explained in Chapter 6, each approach has to demonstrate its reflexive appeal to a certain subset of critically rational agents, if it is to qualify as “scientific” in a non-positivistic way.

In a genuinely liberating economy, economists’ main task is to construct complete approaches—neo-Walrasian, neo-Marxist, neo-Austrian, neo-institutionalist, and so on—whose properties and implications they analyze subject to the counterfactual assumption of unanimity discussed in Chapter 9. *All the agents portrayed in a model are assumed to have “voted” for the model*, so that they have by assumption, like the Walrasian post-revolutionaries in Sen’s awkward set-up, voluntarily chosen to be the agents which the model assumes. Once put on the table explicitly, this counterfactual assumption has deep consequences. It turns out that none of the complete approaches produced and taught by the economists in a liberating economy can be seen as descriptive or explanatory. Rather, by its very structure as a critical description, each approach is a normative economic and human program.

Therefore, at the end of the day, given the peculiar link between the economist and her “subject matter,” *every economist is of necessity a critical consultant* and has to take that fact into account in order to be a *good* critical consultant, i.e., a self-consistent one rather than an amateur one. She can and should teach and write as if every single student and reader had “voted” for the kind of model she is presenting. This is her way of participating in the dynamics of the plural field of economic reflection. But precisely for that reason, she should always take into account the fact that this unanimity is only a heuristic assumption. In actual fact, few or none of the students or readers may recognize themselves in the teaching and most may consider it irrelevant given their lived experiences and their emancipatory aspirations. Unless, of course, as is often done nowadays, a very particular kind of approach is presented to them authoritatively as “scientific,” if not as “uniquely relevant.” Abstaining from such rigidity would be a basic part of the democratic ethos of the economist in a liberating economy.

This democratic ethos would imply that, besides that counterfactual, heuristic moment of unanimity, every economist also has to integrate into her activity *a factual, irreducibly political moment*. This means that none of the complete approaches, whether Walrasian, post-Walrasian, neo-Marxist

or otherwise, is destined to be adopted all at once. It has to be taught in the full knowledge of the fact that it will, after its heuristic moment, be fed into an ongoing economic process whose outcome is, by definition, unpredictable (see, for example, Lindblom 1990). This is precisely what critical descriptions of the economy aim to do: they combine realistic and utopian components in such a way that they can be used as *motivating programs* by critically rational agents who participate in the *irreducible plurality* of the ongoing economic process. The economy's *Esprit Critique* steers the path of the vector of critical descriptions through time. This crucial aspect of a liberating economy would imply that, in the concrete economy, a variety of critically descriptive economic paradigms are carried around by critically rational agents who, during their political debates and polemical confrontations of ideas, nevertheless have to make economic decisions and to conduct economic policy, as well as designing shared rules for their economic life in common.

This raises a deep issue which should mobilize quite some intellectual energy on the part of all economists in a liberating economy. *How do we elaborate economic policy in a society in which there exists no consensus at all on which economic paradigm ought to be used as an orienting ideal?* Recall that each paradigm, as soon as it is taught, gets transformed not into a clear-cut truth, but into a motivating ideal for some subset of the population. Hence, any "positive" description of the concrete economy is impossible because it would have to be *a function of all complete economic paradigms currently in circulation*—none of which, by definition, is able to claim the status of an objective and indisputable descriptive framework.

In this way, each economist and each economic paradigm ends up recognizing its own endogeneity within a concrete cognitive process no one can fully grasp. This may be humbling, but it is also a surefire way of avoiding intellectual rigidity and its corollary: an alienating economy.

The imperative of non-identification

The Critical Political Economy I am suggesting embodies this rather bold ambition of a free-economy economics. It has at its center a plurality of self-criticizing, and hence self-endogenizing, theorists and theories. It is a political economy in a pretty different sense from what this expression usually means today. The idea is not, as Persson and Tabellini (2000) implicitly suggest, to just endogenize everything except science and explanation. On the contrary, my endeavor here is, in some sense, hyper-rational: I give agents' rationality its full reach, going all the way to a fully self-reflexive economics which puts faith in its own agents' capacities to choose the kind of agents they want to be and the kind of economic interactions they want to experience.

Such maximal endogenization doesn't do away with the social role of the economist. It's true that I've gone some way toward claiming that a truly

liberating economy is one in which each agent is an economist of sorts. But no one can deny the need for a division of cognitive labor. We have to take into account *the social need for meta-theorists*, i.e., people whose task it is to reflect on the way in which critically rational agents can be made to interact, without fixing once and for all the way in which they should and will concretely interact. Today's economist should be half theorist, half meta-theorist. On the one hand, she should continue to teach specific paradigms to specific individuals, but on the other hand she should understand how the paradigms she teaches will combine with other paradigms, which she should not attempt to eradicate. In this way, she should also be half universalistically opportunistic consultant, half critical consultant. She should certainly teach a definite paradigm and be maximally knowledgeable in it, but she should teach it as a motivating program for a better society, not as a positive truth believed to "explain reality."

By letting the people themselves make the concrete social process—of strictly required in the bottom-up vision espoused in this book—and by attempting to supply whoever is interested with analytic tools to shape his intentional action within that emergent and unintentional process, the economist would be practicing Critical Political Economy. The single most stringent requisite for this is that the economist, through her knowledge of her own historical endogeneity and her theory's historical and political relativity, cease to treat her particular brand of economics as her own innermost identity and cease to teach economics as if the concrete politics of economic paradigms (see, for example, Cole *et al.* 1991; Reder 1999) didn't matter, or could be reduced to a debate between "science" and "ideology." In a liberating economy inhabited by critically rational agents, this simple picture just doesn't fit the complexity of the ongoing process.

Another "Purple Rose Of Cairo"?

Chapters 2 and 3 showed us in great detail why the mainstream figure of *homo economicus* is never fully sustainable by a fully human subject. The main figure of mainstream economics is not a real human possibility. As human agents, we—thankfully—will never be able to fully move from the theoretical figure of an automaton-individual to *an automatic-individualistic way of life that could be subjectively internalized by each of us*. This is so, no matter how much mainstream economists would need us to be like that in order for their specific theories to be "scientific."

Enlightened economic reason

To some extent, this realization relativizes Marcuse's idea, encountered in Chapter 2, that the figure of *homo economicus* is a mere abstraction of the bourgeois individual. As I emphasized, he is in fact a degenerate abstraction. When we use *homo economicus*, even in his more cutting-edge versions

which supposedly make him “recognizably human,” as a summary of the bourgeois way of life, we’re simply using *a bad abstraction*. A critically descriptive theory of the economy isn’t valid just because it’s critically descriptive. Mainstream economics’ central figure is the epitome of a mentally challenged, idiotic bourgeois individual. He has become so obsessed by social adaptation and immediate instrumental optimization that he has effectively killed off, within his soul, *another crucial part of what being a fully fledged bourgeois means*. Let me explain.

When Marcuse, himself a German bourgeois philosopher educated on Kant, Hegel, and Marx, accuses economics of reifying the bourgeois way of life, he falls prey to a unilateral view of what the Enlightenment project means. Or, rather, being a thinker of the German Enlightenment, he calls “bourgeois” a figure that he too quickly identifies with the Scottish Enlightenment. In my own view, free-economy economics can only free itself from the shortcomings of mainstream theorizing if we start heeding *both* visions—instead of just one single vision—of the Enlightenment.

Hayek, as we saw, is mainly a Humean and Smithian heir to the Scottish Enlightenment, a tradition which has generated what I view as a form of “economic Stoicism.” There are complex economic forces, shaped by no one and constraining everyone, and the resulting suffering has to be accepted as the price to pay in order to live in a society genuinely respectful of individual freedom. Bounded rationality wins the day, and there is nothing any agent can do except attempt to use whatever power niche the complex economic process has endowed him with in order to opportunistically harness that complexity.

Horkheimer, on the other hand, seems to me to be a Marxian heir to the German Enlightenment, a tradition which has generated what I view as a form of “economic Romanticism.” There are indeed bound to be complex social forces, shaped by no one and constraining everyone, but the suffering resulting from bottom-up emergence should be refused, and a collectively critical limitation of unacceptable emergent phenomena is the price to pay in order to live in an economy genuinely respectful of individual freedom. Genuine critical rationality—which some Scottish rationalists may indeed wish to disparage as “hyperrationality”—wins the day, and all categories of agents should attempt, with the help of various critical consultants, to use whatever power niches the complex economic process has endowed them with in order to critically harness that complexity.

Thus, economic rationality isn’t something that can be taken as a fixed, exogenous datum in the economic process. Agents are not “by nature” adaptive (regardless of whether their preferences themselves remain fixed or evolve over time, which is another issue), nor are they “by nature” critical. It is the interplay of complex economic forces and complexity-harnessing individual rationality that determines, in part, the very content of what “being a rational agent” means in any given economy. If that content were somehow fixed or intangible, disadaptation or nonconformity would never

be rational. I claim that they are rational more often than we think, provided we realize that *genuine anti-conformists are frequently trying to rationally challenge the very notion of what it means to be rational*. This is what Horkheimer calls “dialectical thinking.” Without it, any hope of constructing a fully fledged free-economy economics is lost. Critical Political Economy makes critical rationality a demand of citizens (i.e., a “good” to the “production” of which economic resources have to be diverted from other, non-critically oriented uses), and it makes economic rationality a choice variable (i.e., a part of what the economy’s prevailing *Esprit Critique* allows to form and modify) and not only a parametric datum.

In this collective effort to shape the notion of economic rationality, should all critical theories of society be complex-systems theories? As a realist, I claim they should. You can’t both say that the ongoing economic process is complex—which justifies bottom-up Critical Theory and its idea that the vector of characteristic emergents is one of the agents’ key collective-choice variables—and accept that some rational agents will simply deny that complexity out of hand. However, as I already indicated in Part II, some critical theories can be reduced to certain characteristic “tags” that signal their underlying characteristic emergents. In the same vein, there is no *ex ante* reason why agents could not in some specific contexts use “linearized” versions of complex worldviews, exactly in the way a theorist like Paul Krugman (1997) both subscribes to the complexity approach to economics and frequently uses, for certain particular questions, non-complex models. Remember that what a critically rational agent seeks is to critically harness the prevailing economy’s complexity, i.e., to effect a change in *the type of complexity, and hence the type of emergents*, that will characterize the society in which she lives. In some cases, non-complex models could be sufficiently efficient, as motivators for collective action, in shifting the set of characteristic emergents over time. There is no principled reason why they sometimes couldn’t, but understanding the precise conditions under which a subset of complex reality can be “sufficiently” summarized by a non-complex model is beyond my scope in this book.

The “self-sustaining” economic agent

How can we possibly make sense of the agents of a model questioning the form of the model? Isn’t my hypothetical dialog between the theorist and “her” agents a bit like what happens to the actors in Woody Allen’s 1985 movie “The Purple Rose of Cairo”? There, the characters on the screen suddenly stop going along with the screenplay and end up stepping off the screen into the projection hall. Isn’t an economic model much like a “script” whose specifications *include* the economy’s characteristics and the agents’ type of rationality? Then how could agents refute those specifications without contradicting the model-reality in which they are, by assumption, embedded?

This is indeed the way in which most models are constructed, in the “orthodox” mainstream but also in many “heterodox” approaches. However, my quarrel in this book is precisely with this way of constructing economic models. A “rational” economic agent who cannot question his own way(s) of being rational is in fact a sophisticated automaton “programmed” to perform calculations and routines for which the label “rational” is introduced by the programmer, not the automaton. My deconstruction of *homo economicus* as a non-subjectivizable figure highlights that *the implicit relationship between the theorist and “her” agents is a relationship of authority*. Hence constructing any economic model implicitly entails a particular conception of the “political” relationship between the modeling agent and the modeled agents. A model-reality which none of the agents is able to criticize represents a reality in which agents have been made uncritical by some previous, now “invisible” process.

Doing “science” as if that process could indifferently be a lucid, critical one or an authoritarian one, and assuming that doesn’t matter for the way you use the model, is a definite political option. Free-economy economics needs to be able to tell the difference. Uncovering this implicit *politics of modeling* is part of Critical Political Economy. Indeed, I claim that there is an *ethics of modeling* which implies an imaginary dialog between the theorist and “her” agents. The theorist should, as a thought experiment, get to view herself partly on the receiving end of “her” agents’ (educated) self-criticisms and self-rationalizations. She should be clear about the way in which the mechanisms she models, i.e., the way “her” agents are made to interact, allows them to, or keeps them from, critically questioning their own rationality. Any economic model where the agents’ self-reflection is not modeled explicitly but which purports to model a free economy has to assume that, *at some prior stage of the model, all agents have reflected on, and agreed to, being the agents the modeler posits them to be, and to interact according to the rationality criteria the modeler assumes them to adopt*.

Such critical-emancipatory realism implies a whole new way of viewing theory in its link to economic “reality.” A model is indeed a representation of a “possible social world,” but one which includes the reasons agents have for having been made to accept, or for having consciously accepted, (i) to play the games postulated in the model and (ii) to play them in the way postulated in the model. There is no reason, however, why part of the way in which the agents play the games isn’t by rationally reflecting on *how* they want to play them and *whether* they want to play them. The Scottish Enlightenment is short on resources to comprehend this type of reflexive rationality; the German Enlightenment is not, because it allows for the notion of *critical acceptance* modeled in Part III.

Rationally sustaining one’s own reasons for being rational and for accepting to play certain games means being a “self-sustaining” rational agent. This, I claim, is a crucial part of genuinely rational agency. Within any theoretical framework that wants to be part of Critical Political Economy,

this kind of rationality has to be taken on by the modeler herself. She has to accept, once and for all, that any model is, by its very structure, a *motivating proposal* that rests on the counterfactual assumption of agents having previously internalized the individual-level and institutional-level norms of rationality postulated in the model. This means that the theoretical framework that “produced” the model is implicitly an object of *cognitive consensus* between agents and modeler—and ultimately, of course, between “non-economist” agents and “economist” agents within a more complete (meta-)theory that would no longer posit the theorist as a programmer outside the models she uses.

Thus, a self-sustaining economic agent is a thoroughly reflexive agent who adheres to the individual and social structure into which he is embedded, but whose adhesion is of the critical kind. A fully self-sustaining economic agent is an agent who has—as it were—*rationally adhered to the “rationality program” that she is made to play within the economic interactions. No economist should present a model involving agent-types for the subjectivization of which she has no sound argument.* (To repeat, there is no sound argument for the subjectivization of mainstream *homo economicus*.) But of course, subjective adhesion doesn’t necessarily mean definitive and unreflexive internalization. Just as critically rational agents adopt the existing economy with critical acceptance, they also view their own rationality and their own limited capacities of reflection with critical acceptance. They wish them to be otherwise, but they realize that change can only come through a (CA- and/or OS-) critical harnessing of the economy’s currently prevailing complexity.

As we will see presently, this same notion of critical acceptance also has implications for the way in which any economist ought to view her own knowledge production within a genuinely liberating economy.

Can the economist fully endogenize herself?

“Political economy” used to be the name given to economics by the classical theorists of the eighteenth and nineteenth centuries. Nowadays, it has become the name of a sub-paradigm within mainstream economics. In this book, I have been arguing for yet another, more general conception of which, I believe, the two previous ones are particular cases. The fundamental question I am addressing is: What does it mean to be a *one-paradigm* economist when one thing complex economic processes do is to generate a *multiplicity* of economic paradigms or worldviews held by variously located, critically rational economic agents and constrained by the economy’s overall *Esprit Critique*?

In that perspective, the expression “Political Economy” becomes merely a description of what *any* economist does when she comes to see herself as what she really is, i.e., as an “observing participant” in a complex economic process. Only under politically very objectionable circumstances could any

economist or group of economists define, or fully determine, the process's overall *Esprit Critique*. Under democratic political circumstances, the emergence of diverse economic paradigms and worldviews from the enacted interaction between critical rational agents implies that *any economic paradigm is, in actual fact, a piece of "conditional knowledge."* It describes "reality" only under the counterfactual condition that everyone has adopted the economic worldview underlying the paradigm and its array of analytical models.

As Mäki (1998, 1999) has explained in his discussion of Coase's (1974, 1988) methodological options, if you are an advocate of the free market when it comes to the self-regulation of science, you cannot at the same time be an advocate of a state-regulated market for goods. Unless, that is, you explicitly make use of two distinct notions of a "market," in which case that distinction has to be reflected in the structure and axioms of your paradigm. One could say something similar with respect to Hayek. If you are Hayekian about the virtues of complex emergence in a free market for goods and services, you had better also be Hayekian about the virtues of complex emergence in the realm of political experiments. By the same token, if you are Hayekian about the "use of knowledge in the economy," you had better also be Hayekian about the "use of knowledge about the economy." *In complex economies with critically harnessing, rational agents, emergence becomes an intrinsically political process* because (i) the emergence of ideas about the economy becomes a political process and (ii) hence self-reflexive ideas about the economy become political ideas. As a result, *the economist's self-perception has to be that of an "organic intellectual" linked to a certain critical paradigm within a complex political contest of critical paradigms.* This implies that "economics" is not a definable discipline; economics is, in and of itself, a processual and emergent property of the economic system. It also implies that each economic model is a piece of *conditional, recursive knowledge*: a model *M* provides whatever knowledge can be derived from the condition that every agent in the ongoing economic process adheres to the presuppositions of model *M* itself.

Some readers might feel that this proposition smacks of hidden historical materialism. I don't believe it does. Indeed, I am not implying that the content of economics is the sole result of "economic forces." What the proposition does mean, however, is that *economics is itself a "characteristic emergent" of the economic system.* As such, it is the ever-changing result of various agents' enacted critical knowledge about the economic system, and this enacted knowledge is itself interactive and fed by the whole array of economic paradigms made available by various one-paradigm economists.

Thus, in a genuinely liberating economy, all economists are embedded participants in a complex process whose "reality" eludes them. Each one-paradigm economist constructs a partial totality to be fed into the ongoing concrete totality in the hope of opportunistically or critically harnessing its complexity. No economist can ever fully endogenize herself in her own

model of the economy, since her model must, of necessity, postulate the agents' homogeneous and unanimous agreement with the "script." This is a methodologically necessary, but empirically false, assumption. Thus, the modeler necessarily stands outside her own model while standing inside economic reality. This is unavoidable, but it would be immensely helpful if she could recognize this dichotomy explicitly and draw consequences from it. Basically, *the economist should exercise critical acceptance of her paradigm, i.e., she should accept it both as a momentarily plausible description of the economy as it could be and as a definitely implausible description of the economy as it is.* Since the economy as it is the emergent result of economic activities propelled by a plurality of—possibly wildly diverging—paradigms, and since the economy as it could be has to be constructed from within the economy as it is, there's little sense in identifying oneself with one's paradigm on the basis of its alleged "scientificity" or "explanatory power."

At the end of the day, each economist adheres to her paradigm the way a politician adheres to her political options. Any one economist can legitimately say that, given the system's complexity as it is, her paradigm draws up the way she wishes the economy would operate. *If, however, she says that in order for her paradigm to be the only one taught in schools and at universities all other paradigms ought to be marginalized and even eradicated, this economist denies the existence of critical rationality and reflexive capacities within the population.* She is acting just like a capitalist who seeks the support of the state in order to gain a monopoly position. She may still want to do it, in the full knowledge that there will be epistemic resistance from within the profession and that she will have to stave off that resistance. But the concrete way in which she attempts to locate her abstract paradigm in economic space in order to make it self-realizing implies *consistency constraints* on the content of that abstract paradigm. Following the reasoning of Coase and Mäki, this monopoly-seeking economist cannot possibly, in her own economic paradigm, insist squarely on the negative consequences of interest-group politics and monopoly-rent seeking by *non*-economist agents. She should, at the very least, add to her paradigm a theory as to when monopoly-rent seeking by some agent can be legitimate in order to fight monopoly-rent seeking by other agents. In other words, her paradigm should include a theory of the agents' critical acceptance of existing norms. If it doesn't—well, then it doesn't model a liberating economy made up of freely reflecting agents (economists included).

Therefore, as announced, the concrete reality of economics in a liberating economy is that of an *intrinsically plural field of economic reflection*. Free-economy economics is a process made up of various, usually irreconcilable reflexive attempts at realizing abstract utopias. Unless we want the politics of economics to be yet another instance of pure power politics based on force, manipulation, and possibly even corruption, these coexisting attempts at realizing the various abstract utopias should be mutually consistent. The consistency constraint is that the defender of an abstract paradigm *P* can

contradict P 's basic worldview in his concrete actions in the concrete (and ultimately unknowable) society S only to the extent that she populates P with agents who have the *same* capacity for critical acceptance as the one she exercises in institutionally defending P within S . If she fails to do so, she will merely be pushing for the realization of her own preferred theory of the economy without having an argument as to why this theory should be adhered to by the agents in the models it produces. That would be a clear instance of Hayek's (1952) accusation of an "abuse of reason," and of theory as an exercise in intellectual totalitarianism.

This consistency requirement is, in essence, what Critical Political Economy is all about. It has some apparently paradoxical implications. It means, for instance, that an economist whose axioms embody a worldview of strong left-wing political economy or of Marxist theory has to accept that there can also be a state-organized plan for the allocation of paradigms to schools and departments *and* that in such a state plan, Marxist economics might not correspond to the officially held—e.g., neoliberal—notion of collective emancipation. Refusing to have her paradigm's survival depend on a contingently predominant notion of emancipation would not be consistent with her paradigm. Similarly, an economist who starts from axioms that lead her to advocate free markets has to accept that there can also be a free market for economic theories *and* that on such a free market, free-market economics might not correspond to the preferences of the users of economics. Lamenting that her paradigm's survival hinges on the whim of agents' preferences would not be consistent with her paradigm.

Of course, either of these two economists may react to such situations by altering her paradigm in order to account for the kind of paradoxical experience she is having within the economic process. Or she may attempt to alert certain key agents to the dangers of what is occurring. In a complexity setting, all such measures will fall within the rationally adaptive or disadaptive (opportunistic, CA-critical, or OS-critical) actions which contribute to the dynamic path of the economy's *Esprit Critique*.

The consistency condition also means that the economist always has to have in mind the hypothetical dialog with "her" agents, which I set out above. Only if each circulating paradigm is made to state explicitly the cognitive conditions under which the agents that populate it would adhere to its worldview will economics become a truly self-criticizing discipline, able to contribute to the construction of a self-criticizing economic system as analyzed in parts II and III. In that sense, Critical Political Economy can be characterized in a nutshell: *a self-criticizing economics sustaining, and sustained by, a self-criticizing economic system*. In the last chapter of this book, let's investigate some of the more concrete implications of Critical Political Economy for the way in which economics should be taught to students and transmitted to citizens.

11 Post-orthodox pluralism in economics

This final chapter attempts to draw implications from our view of economics as a political process for the teaching of economic paradigms. Obviously, on the surface, not much may change. Each one-paradigm economist will still be, essentially, teaching the one paradigm he feels ought to influence, and perhaps even fully determine, the economy's *Esprit Critique*. But precisely, this lucid awareness of participating in a real-time political process—i.e., of participating in the deliberate construction of a non-fully controllable “critical atmosphere”—is bound to affect the *way* in which each theoretical paradigm is taught. It is also bound to affect the boundaries between what can legitimately be taught in economics departments as “economics,” and what had better be left to business schools or “applied economics” departments.

Economic theory and local knowledge

The most basic axiom of my argument in this book is that critical rationality is “wired into” our culturally evolved psyches. It's not a unanimistic or paternalistic axiom. I have argued that it can be reflexively validated, and fully internalized, by anyone of us because if we reflect on ourselves we see that we couldn't be human subjects without our critical rationality. As we saw in Parts II and III, our human reason combines both local knowledge about the environment of interactions and global worldviews about how our various “micro-worlds” are combined in the economic system the way they are. The basic postulate is that any economy is a set of *potentially* critical agents. The possible—and frequently observed—*absence* of critically minded economic interactions has to be explained as *part of* any economic theory rather than taken as a “fact.”

Much of everyday economic activity is about creatively using the local knowledge to perform well within the co-evolved norms of credit attribution. Mainstream economics is all about the supra-individual consequences of this use of local knowledge by individual agents. However, as I have repeatedly argued, mainstream economics also and by the same token has to offer theories about why individuals would use *nothing but* this local

knowledge and about the economic conditions which lead individuals to use *nothing but* this local knowledge. The content of economic rationality is as much a product of as a building block for the norms of economic life.

Thus, in a complex economy where most agents' life energy is devoted to adaptive thinking, there should be a very clear division of labor between theoretical economics and applied economics. The whole point of social science in general, and of economics in particular, is to build specific hypotheses about the unintended aggregate effects of intentional individual actions, and to feed these hypotheses back to the individuals in order for them to become lucid about certain "blind spots" in their perception of the *overall context* of their localized actions. Whether this feedback is of the opportunistic or of the CA- or OS-critical kind is up to the economist herself to decide, provided she heeds the consistency condition that whatever kind of harnessing, and hence of economic rationality, she presupposes in her quality as a "consultant to the people" should be explained *within* her theory by causal mechanisms adhered to by the theory's agents.

From such a perspective, theoretical economics and applied economics—including the institutionally contextualized art of economic policy (see Colander 2001)—are best viewed as dealing with fundamentally different levels of knowledge. Theoretical economics should have two aims: first, to counsel individuals and groups on the basis of complexity-harnessing tools dependent on *some specific* paradigm; second, to construct knowledge about how the various complexity-harnessing attempts, taking place in the economy on the basis of *various* paradigms, shape the economy's characteristic emergents and its *Esprit Critique*. Applied economics should also have two, but very different, aims: first, to understand how individuals use theoretical tools to harness complexity; second, to counsel individuals on which tools to use and on how best to apply them. Clearly, this doesn't mean that theoretical and applied economics ought to be hermetically sealed off from one another. It does mean, however, that neither of them can be viewed in the way they are today, i.e., essentially as the two "peacefully complementary" toolboxes needed by students who want to understand contemporary industrial capitalism and either make it work better overall (as policy-makers) or make the most possible money within it (as business people). Two very different notions of complexity harnessing are involved.

Business education obviously deals almost exclusively with opportunistic harnessing. In management studies, the emphasis is on the use of local economic knowledge. This level essentially deals with *intra-normative reflection*, that is, reflection that can be considered "critical" but doesn't question the prevailing norms. Quality improvement procedures, changes of human-resource management techniques, and the like, are located here. Business economists have *no need for reflexivity beyond the creative use of local knowledge*: how to be a good manager or marketing agent, how to maximize clients' shareholder value, and so on. [Recall my criticism of Axelrod and Cohen's (2000) bias towards opportunistic harnessing in the

business world. Even more explicitly, witness the opportunistically oriented capture of complexity theory by managers in Pascale *et al.* 2000.]

Economics departments, on the contrary, promote a use of knowledge about the economy which essentially deals with *inter-normative reflection*, that is, reflection that is “critical” in the more fundamental sense of questioning the prevailing norms of the economy and building theories and models in which agents carry out such critical judgment. Therefore, an economics department has to be able to justify on a case-by-case basis why its members—as economists—are either opportunistic or critical consultants. This *obligation of self-reflexive justification* would allow students and colleagues alike to discriminate in any way they wish between various available paradigms and hence, in particular, between those economists who positively endorse capitalism and those who only critically accept it. Given that task, any paradigm that theorizes a self-criticizing economy is part of the ongoing process called “economics,” and the structure of departments has to reflect that plurality.

The upshot of all this is that *economics departments and business schools ought to be strictly separated*. The merging of economics and management, particularly at the undergraduate level, can only be denounced as incoherent. It makes it look as if business economics were part of political economy, and therefore blurs the boundaries between two very different levels of knowledge production. The cross-fertilization between these two levels should be designed very carefully, and not brutally reduced to the general advocacy of capitalism which is bound to be the effect of merging economics and business studies. Such merging is, in actual fact, an attempt to dispose of CA-critical economics, and even more so of OS-critical economics, as “useless”—which they are, of course, in the eyes of business economists who are looking for tools to opportunistically harness the system’s complexity.

This is not, of course, meant to disparage localized knowledge. Quite to the contrary, I believe that in a complex economy there has to be a multiplication of professionally specific, applied economics departments. Think about the following. Why are the only applied economics departments, by and large, business and management ones? This is a politically specific attempt to mold applied economics into being simply a handmaiden to the interests of capital. Why aren’t there, quite on the same level as the predominant schools of business administration, schools of public administration, of trade-union administration, of non-profit administration, of self-management, of consumer-protection administration, and so on? Or why are there still so few?

The standard, market-oriented economist will answer immediately that there would be more if there was more demand—but there doesn’t seem to be. This reply, of course, is another instance of what Horkheimer and Marcuse call the “fetishism of facts.” That there are so few applied-economics alternatives to business schools might equally well mean that today’s economic system obscures the rationality of becoming a non-academic economist outside of policy macroeconomics and business microeconomics. And the

main reason for this bias lies in the fact that academic economists don't include rational non-conformity, critical demystification, and Socratic cohesiveness in the rationality attributes with which *homo economicus* is endowed. Bounded-rationality evolutionary economics, *when taught in the current context of accelerating global capitalism*, is bound to convey to students the notion that it's best to be creative managers and, barring that, flexible and highly skilled workers rather than, say, courageous militants for industrial self-management or solidarity-oriented trade-union reformers.

Such a bias can only be avoided if the greatest possible variety of professional schools is made to exist through public or associative (including cooperative) funding. And that, again, implies that economic theories have to contain causal explanations of when and why funding is or is not made available for non-conformist, critical economic agency. Alongside business administration departments and business schools, public and/or associative funding should be encouraged to build up schools of public administration, trade-union administration, non-profit administration, self-management, consumer protection administration, and so on. These schools could be legally protected against funding from capitalist enterprise. Part of the feedback to them coming from radically oriented theoretical economics could be an understanding of how private capital's influence can be hedged by non-capitalist initiatives.

A liberating economy that would allow for such a variety of applied-economics initiatives could, somewhat surprisingly, increase its own potential for critical harnessing. Let me explain. Each of these applied economics schools would offer its students its own, specific view on opportunistic harnessing of the system's complexity. Business schools teach how to harness the system to maximize profits; union-administration schools would teach how to harness it to maximize wages, or to improve working conditions within capitalism, and so on. Thus, *each "opportunistic" teaching perspective would embody some category's lived experiences within the system, and would try to rationalize those agents' ways of dealing with the prevailing complexity.* While none of the perspectives would *per se* be more critical than another (though union administration would be more critical of capitalism than, say, business administration), the "material" they would produce could allow for a synthetic view of how the system's current population is living within it. In that sense, an economy that allows for a plurality of opportunistically harnessing perspectives is much freer than an economy that distorts its teaching of opportunistic harnessing towards, say, business and management exclusively.

The thorny issue of "economic literacy"

The above excursions into aspects of the structure and teaching of economics are apt to spark a strong reaction on the part of economists established within the mainstream paradigm. Studying economics, they will claim, is

either about becoming a competent policy adviser—be it only indirectly through one’s theoretical papers—or about becoming an informed citizen who is able to comprehend the world around him and act within it in an enlightened way. Actually, I have no quarrel with this position as long as it leaves significant room for “being a competent policy adviser” meaning something else than an opportunistic consultant, and “acting in an enlightened way” meaning something else than opportunistic harnessing.

Nobel laureate James Tobin has been quoted as writing that

High school graduates will be making economic choices all their lives, as breadwinners and consumers, and as citizens and voters. A wide range of people will bombard them with economic information and misinformation for their entire lives. They will need some capacity for critical judgment.

(Quoted in Lietz and Kotte 2000: 1)

This emphasis on critical judgment is commendable. Indeed, to the extent that the teaching of economics allows for CA-critical and OS-critical harnessing as a distinct possibility, i.e., to the extent that a significant number of economists can be critical consultants within whatever paradigm they see best fit for that task, the aim of educating citizens as “enlightened” economic agents is perfectly acceptable. It is even, as I have been arguing all along this book, crucially necessary if we are to live in a genuinely liberating economy able to shape its norms of rationality and of interaction. However, as I have also been endeavoring to convey, no single paradigm used to interpret and envision economic reality can be deemed up to the task. Durably plural reflection is eminently needed because we cannot accept that such contested notions as rationality, efficiency, and value be monopolized by a single set of axioms or meta-axioms.

Such pluralistic and critical equipment is not, however, what most of the economists and businesspeople who have recently started to militate for so-called “economic literacy” have had in mind. This idea of economic literacy seems well intentioned as long as the general aim of economic education in schools and at universities is

for students to realize that economic problems change over time, that economic decisions taken in the past have developed the economy to its present state and that decisions will have to be made to meet new and probably more complex problems in the future.

(Lietz and Kotte 2000: 2)

In fact, this general statement is totally compatible with my notion of the economy as a complex adaptive system propelled by interactions between critically rational agents. However, this initially broad view is usually narrowed down drastically when it comes to the content of the economics that

is supposed to be taught in the bout towards “literacy.” True enough, very basic accounting realities, such as the existence of both benefits and costs in any economic decision, or the existence of identities such as $C + I + G + X - M \equiv Y$, should be part of the baggage of any even moderately literate citizen. To the extent that this is not the case, more “economic education” is certainly called for. But what is to be offered beyond this most basic alphabet? Here is a somewhat sobering example taken from a highly influential US think tank consisting mostly of businesspeople:

The National Council on Economic Education (NCEE) is a nationwide network that leads in promoting economic literacy with students and their teachers. NCEE’s mission is to help students develop the real-life skills they need to succeed: to be able to think and choose responsibly as *consumers, savers, investors, citizens, members of the workforce, and effective participants in a global economy.*

(NCEE 2005, italics added)

This declaration of intent is no invitation to OS- or even CA-criticism. It is merely a description of globalized capitalism and the “skills” needed to opportunistically harness its complexity. It postulates what most mainstream economic models (*even non-capitalist ones*, as we saw in Chapters 2 and 3) in fact presuppose, namely a population of uncritical, myopically adaptive agents whose internal models contain no “critical literacy.” In a more explicitly Hayekian vein, in an article on the “philosophy of economics education,” W. D. Rader writes the following:

Students who do not understand the role of profits in an economic system may develop a negative attitude toward business. The lack of economic literacy leads to the existence of attitudes that may inhibit economic progress. [...] economic literacy will lead to the making of better choices by our elected representatives, which in turn will lead to an improved quality of life for the large majority of citizens.

(Quoted in Lietz and Kotte 2000: 1)

Far from being a call for critical education, this is little more than a description of the “(im)possible world” based on profit-driven competition and the first theorem of welfare economics. It is a call for one-paradigm indoctrination rather than multi-paradigm criticality. My own conception of what economics, as opposed to any single economic paradigm, is and has to be leads me to strongly reject this option. Critical Political Economy as set out in Chapters 9 and 10 simply cannot admit such restrictive visions and would expel them from the range of visions admissible within free-economy economics. “Economic literacy” *in an empowering and emancipating, complex adaptive economic system* has to be something rather more ambitious.

Clearly, Critical Political Economy is about much more than just the debate between neoliberal and progressive visions of the economy. It is also, and much more importantly, about the way in which the economist ought to portray “her” agents when teaching to individuals who, after all, *are themselves* agents, just like the economist herself. It is, furthermore, about how to organize the teaching of economics so that *as critically rational agents* students receive exposure to a variety of critically descriptive paradigms, each viewed as a motivating program rather than as a “positive” description or explanation of existing mechanisms. The added criterion of Critical Political Economy is that a given paradigm can only be taken as “scientific” (in Horkheimer’s sense of critical rather than “traditional” science) *if it can be shown to reflect some individuals’ emancipatory aspirations in the existing economy*. Thus, economic literacy ought to be first and foremost about making agents critically rational and giving them the cognitive means to harness social complexity with their critical theories. The complex economic process itself will do the rest. The NCEE’s program of fabricating evolutionarily fit agents within existing globalized capitalism is just one, very specific program whose desired pre-eminence within teaching curricula ought to be justified rationally—and cannot be, if my critique of Chapter 3 is correct.

The NCEE’s pundits might reply that their rational justification indeed exists, and comes down to the need for kids and youngsters to gain “survival credit” in a complex market economy such as today’s. They would still not, however, be telling us why they believe this small aspect of “rationality” ought to be so central. After all, opportunistic harnessing as expounded in their program is far from exhausting the range of complexity-harnessing attitudes. Why brush critical harnessing under the rug? The truth seems to be that, having endorsed a very specific view of what rationality means, the NCEE are prepared to relinquish the *full* extent of what “rationality” means, and to settle for a narrow, truncated conception of the agent and his cognitive abilities. They are indeed offering a *critical* vision of how the economy should operate, since they want that vision to *reach* people, to *educate* them and make them more “free,” not just to “inform” them. But their implicit motivating program is a narrowly Hayekian vision. Such a vision cannot possibly be used as a unique building block for a teaching curriculum. It can only be part of a much broader curriculum that would relocate the NCEE’s narrowly Hayekian view of the economy within the whole, much broader context of the modern economy with its critical tensions and contradictions as experienced by the people themselves.

Critical Political Economy: an ideal curriculum

After the long journey of discovery—some would say “re-discovery”—undertaken during the past ten chapters, I’m convinced that Critical Political Economy would go a long way toward cognitively empowering citizens

and, therefore, fostering the conditions for a genuinely liberating economy. One of the main lessons we've learned is that *if we want to build a genuinely free economy, we have to teach free-economy economics, and this carries with it some pretty stringent constraints which Critical Political Economy attempts to embody*. Let me suggest a few ideas about certain aspects of a "CPE-compatible curriculum," derived from my whole discussion in this book.

- 1 The overarching goal of the discipline of economics should be presented as *free-economy economics*. In other words, a substantial amount of effort has to be put into educating students to see themselves as what they are—namely, as agents capable of reflecting on what "free" means. Economics should no longer be presented as a descriptive science, but as a discipline that aims at citizens' cognitive empowerment and emancipation. "Description" itself is of little value unless it is *critical* description, and this should be impressed upon all economics students from the start.
- 2 Consequently, any economic theory should, in the various models it produces, present rationality as an endogenous category. Economic rationality is partly "wired in," partly determined by the functioning of the economic system itself and, as such, it can be reflected on by critically rational agents who aren't "rationality takers." Humans are not natural automata, they are free thinkers.
- 3 Economics is to be understood as an ongoing emergent process within the ongoing emergent process of economic life. Therefore, elements of complex-systems theory and of cognitive psychology could be introduced at the earliest undergraduate level, and immediately applied to the interaction of critically rational agents in the way suggested in Part III.
- 4 The field of "positive" economics is best abolished in its current state. It could usefully be replaced with two key fields: the history of economic events on the one hand, and the history of economic ideas on the other. These fields should never be taught independently of one another. Rather, they should be structured in such a way that students understand how dominant theoretical worldviews lead us to select certain "facts," and how in return lived experiences in the population affect the formation of certain theories.
- 5 Consequently, both economic history and the history of economic worldviews should be intimately connected with economic paradigms themselves. Theories and their associated models are perfectly alright, provided each body of theory is presented as a possible economic world which embodies a program viewed as a motivating tool for collective action. Each such program emerges from the historical interface between economic events and economic ideas. (Remember, for instance, our discussion in Chapter 2 of standard economics as a formerly

emancipatory bourgeois critique of pre-bourgeois economies, no longer fit for today's emancipatory aspirations.)

- 6 The notion of a paradigm should be central and the teaching of methodology should center around it, although not reduced to the Kuhnian version only. The basic idea there would be to make sure that students understand each paradigm—neo-institutional, neoclassical, neo-Marxist, “regulationist,” “conventionalist,” Sraffian, and so on—as a structured proposal for a livable economic world, with its associated presuppositions and its specific consistency problems. No department should be allowed to use the term “economics” unless it respects conditions 4 and 5, and unless it teaches at least three irreducibly distinct economic paradigms.
- 7 Free-economy economics is a pluralistic endeavor because it has to deal with differently situated agents carrying into their actions their own lived experiences and critical interpretations. Thus, economics can't be a monolith. Along with conditions 2 and 3 comes the idea that economics is inherently political as regards its own internal functioning. Students should be made sharply aware of the internal functioning of the political contest between economic ideas. The sociology and politics of the internal structure of the economics profession should deal, among other topics, with how economists choose their field, how they interact professionally, how their own interests may or may not shape what they think and how they see the world, what is the role of an economist in a liberating economy, and so on. These issues should be taught both at the undergraduate and at the graduate level.
- 8 Economic policy should be taught as an “art” that feeds on all existing paradigms which are connected to the period's *Esprit Critique*, rather than being seen as the application of a single paradigm. So if there is a “theory of economic policy,” it shouldn't simply try to explain how various policies can “make markets work better” or provide the “right policy mix.” Rather, it has to show how policy-makers select the paradigms they deem relevant, and how critically rational citizens could and should control that selection process.

I believe these suggestions cannot be eliminated or brushed under the carpet without confirming and reinforcing the already widespread impression in the population that most mainstream economists look down on citizens. Note very carefully that you cannot simply push these proposals aside by claiming that you are already a public-oriented, caring, open-minded economist. The question is not your intention, it's your actual practice and the assumptions you implicitly use when doing “your” economics with “your” agents. Remember one important insight of Chapter 2: you can easily make models of nice, “alternative” economies but then people them with agents who don't have the faintest glimmer of why “your” view of a better economy should be “theirs.”

The key to my CPE-compatible curriculum is *an explicitly acknowledged, irreducible internal plurality* linked to an acceptance that economics should be *free-economy economics* and that a liberating economy should be *made up of cognitively empowered agents*. Once economics is understood as an intrinsically political discipline, we need to be aware of its own specific political economy—the “political economy of economics,” in the terms of Cole *et al.* (1991): the power relations, the internal attempts to reduce plurality or to silence dissidence, the struggle for budgets, academic prominence and the claims to being able to set the agenda through the “standards of the profession” (see also Coats 1993; Lebaron 2000; Edwards 2002). One implication is that there can be totalitarian ways or democratic ways of organizing an economics department, and these political categories should be used as critical tools for assessing existing institutions and prospective reforms.

Now, a crucial open question is whether this curriculum isn't actually *too pluralistic*. Doesn't it leave too much room for a kind of post-modern efflorescence of paradigms and also of pseudo-paradigms—New Age economics, anti-Semitic economics, and so on? Isn't it the job of the academic world to try and convey a hierarchy of values between various paradigms, lest all forms of knowledge and even superstition be considered epistemically equivalent or indistinguishable (see Feyerabend 1975, 1987)? It is true that, as in my discussion of bottom-up Critical Theory where the question of how various critical theories compete in terms of power is not sufficiently addressed, here in my discussion of Critical Political Economy the question of what criterion can be used to limit the plurality of paradigms, and possibly exclude some of them, is not sufficiently addressed either. In a nutshell: *how can we, as critically rational agents, criticize the contents of our period's Esprit Critique?* The answer is, we can't completely do this. In a liberating economy, you can't stand apart from your time and just call for the elimination (whether physical or otherwise) of theories that don't fit your bill. What you can do is to empower citizens with the help of your theory and show them, through CA- and OS-critical counseling, that it better describes their own aspirations to emancipation than do other theories. There used to be anti-feminist elements in economics, and racist ones too, as shown for instance by Gibson-Graham (1996), Levy (2001), and Peart and Levy (2005). These have now, for the most part, receded into oblivion. Such a critical process is, in Horkheimer's and Marcuse's terms, the result of a *social struggle*. Only economic paradigms which are CPE-compatible, rather than parading as “science,” can be coherently used to fight such a struggle.

Therefore, my main defense for my curriculum consists in the following. Nowadays, the tendency to make explanatory theories into “scientific” methods reflecting “the facts” has led to the academic dominance of a single orthodox paradigm (Lawson 1997). As I have amply demonstrated, this orthodox paradigm—mainstream economics in its various guises—reflects a view of us citizens as cognitively disempowered, at least when it

comes to knowledge about the economy in which we live. Since we are starting out from such a sorry situation, we can already gain some substantial cognitive empowerment from envisaging a world in which that orthodox dominance is replaced by a “post-orthodox” plurality—POP for short. And this is what my curriculum provides, at the risk of not immediately fitting everyone’s personal views of what the best economics might be.

I don’t apologize for that. What I will do is to keep reflecting on how to organize economics so that it portrays the economy as genuinely liberating: as a plural field of reflection in which all critical theories can coexist and struggle for an enlightened, critically rational audience. That this “post-orthodox pluralism” would not at all be appreciated by mainstream economists is not surprising, given the politics of the profession as things stand today. What is more surprising is that it might also not be appreciated by those economists whose paradigms are helped by it. Pluralism is also regarded with mistrust, and even scorn, in many “heterodox” circles who lament the “dissemination” of postmodern thought and secretly harbor the wish that *their* critical description of economic reality might become the new orthodoxy. Perhaps they should, instead of complaining about postmodern excesses that are rather far off and hypothetical in today’s pretty monolithic climate, put their efforts into using the open space offered them by POP in order to develop their alternative worldviews and make them palatable to students and, more generally, to economic agents looking for critical cognitive resources to make the economy a better place.

Knowledge institutions in a genuinely liberating economy

Given all I’ve written, my next claim may come as a surprise. *No pluralism at all should be allowed regarding our views of a genuinely liberating economy.* Anything else than post-orthodox pluralism is, I claim, a mistake and a curtailment of the genuine freedom that our current *Esprit Critique* urges us to realize. In short, there can be no acceptable alternative to Critical Political Economy and its pluralism. I mean this as a thoroughly non-pluralistic statement!

The reason is simple. In the same way that a pluralist society has to root out any anti-pluralist forces that attempt to undermine it, Critical Political Economy cannot tolerate within it teaching programs that contradict post-orthodox pluralism. Moreover, as I have endeavored to show throughout this book, only Critical Political Economy can serve as a consistent, non-contradictory framework for coordinating various self-consistent paradigms, each of which offers one specific critical description of the economy. By a consistent, non-contradictory framework, I mean a framework that coheres with today’s view of an empowered and emancipated, hence reflexive and self-reflexive, economic agent. Therefore, my plea for Critical Political Economy is not a plea for an economy in which Critical Political Economy would be just one among several possible options. There is no

other option, I claim, that coheres with what we mean, here and now, by a genuinely liberating economy.

Critical Political Economy doesn't call for any specific economic institutions. It cannot claim to offer, as any structured economic paradigm can, tools for discussing the legitimacy of markets or planning, of private or public property, and so on. What it does call for, however, is a set of supporting institutions within the economics profession. Just like in the remainder of democratic life, post-orthodox pluralism cannot be upheld if anti-pluralists are allowed to rule departments and faculties. In that sense, by militating in favor of a plurality of critically descriptive theories of the economy, Critical Political Economy also militates for *radically pluralistic institutions of teaching and research in economics*. And that pluralism can't simply be negotiated, in Habermasian fashion, by appealing to the anti-pluralists' better judgment. It has to be struggled for—mainly by making students aware of some of the blatantly anti-pluralistic measures being taken “behind their backs” by their orthodox instructors in boardrooms and faculty meetings.

One of the main upshots of Critical Political Economy is one that might seem just symbolic and semantic, but is in fact crucial. The word “economics” should never be monopolized by any particular paradigm in an attempt to silence opponents and dissidents. This is what often occurs, however, in today's climate of mainstream dominance: a subset of economists claim the right to call themselves “economists” and to label as “non-economists”—or “pseudo-economists”—those who want to teach and promote a different critical description of the economy. The anti-pluralists claim to be doing this in the interests of students and citizens at large, who allegedly should be taught nothing but “science.” *But in the theories and models that make up this “science,” none of the agents actually has a say about what, to them, constitutes a relevant, action-motivating description of the economy.*

In that sense, the anti-pluralists are simply being inconsistent, and that's why point (6) of my CPE-compatible curriculum suggests that only a department that teaches and fully develops at least three different paradigms—for instance, mainstream, Marxist, and Sraffian economics—be allowed to call itself a “department of economics.” A one-paradigm department, or a department where all paradigms except one are taught merely as curiosities or anomalies, would have to explicitly acknowledge its monolithic character and call itself, for instance, “department of neoclassical economics” or “department of Marxist economics.” Obviously, such a labeling policy would not be easy to enforce, but this does not mean we shouldn't attempt to put it into force. Such a measure has to be struggled for, and this means critically harnessing the complexity of our education policy system in order to convince key actors that such a measure has to be implemented despite the anti-pluralists' protests.

In all debates on the funding of research projects or the creation of course curricula, the understanding should be that *plurality reduction among*

paradigms is always a potential sign that one is wanting to make the economic agents less free. Since this is very rarely, if ever, the explicit aim of an economist, the contradiction should simply be faced: most of our models, as well as the theoretical paradigms into which they are embedded, actually portray an economy made up of agents whom no economist would under most circumstances want to resemble, especially when she practices her profession.

Of course, plurality has a cost. Suppose you offer students a menu of mutually exclusive ways of critically understanding the economy and of “thinking like an economist.” This may imply that each of these ways can be taught less in depth—at least at the undergraduate and lower graduate levels—than the mainstream approach, for instance, is being taught now. Moreover, it is bound to create problems for those with totalizing ambitions who seek to create large, and even very large, mono-paradigmatic units usurping the label “economics” and offering substantive economies of scale. Such mammoth groupings make sense only if one presupposes (as do profit-maximizers in our present capitalism) that there is essentially one “right way” of doing things—in this case, of doing economics. However, under a regime of Critical Political Economy, the reverse is true. “Small Is Beautiful” may be a much more adequate slogan for a “POP” world of free-economy economics in which medium or even small-sized units would compete for students. These students would not have *ex ante* been terrorized or indoctrinated into believing the rhetoric of the “one right way” and, therefore, would be much more mobile than they are now between paradigms and between philosophies. (For one experiment among others, see Söderbaum 2003.) To restate what should by now be obvious, *economists can foster such a pluralistic academia only if they admit plurality into their respective theories*, i.e., if among other things they accept the idea that each model, in each theory, is a possible world based on a counterfactual assumption of unanimity, so that *each theoretical paradigm is a “monistic” proposal within a pluralistic economic reality.*

Hayek’s key idea that a liberating economy is one that “plans for competition” can be deployed fully here. Critical Political Economy is not against competition. It is, very emphatically, in favor of *fair* competition among paradigms. Hayek himself was not in favor of diversity *per se*, because as we saw in Chapter 4 he believed that the process of competition embodied Reason. Thus, competition’s end results were always legitimate, even if they meant monopoly and the eventual destruction of diversity. This is because, as we saw, Hayek had a specific notion of freedom in mind, one that did not include the individual agents’ cognitive empowerment. However, “planning for competition” could also mean something very different if we included into it the imperative inherent in bottom-up Critical Theory: maintain the diversity of critical standpoints that comes from the diversity of lived experiences in a process of enacted knowledge acquisition such as the one suggested in Chapter 7. Only if this imperative is heeded will the dynamic path of the economy’s *Esprit Critique* be a path of cognitive

empowerment and emancipation. The current path is quite far removed from this. It champions a monolithic view of what it means to “think like an economist” (Arnold 2005) and *selects within the multifaceted reality of capitalism only those experiences that can be rationalized through the dominant paradigm*. The result is that one mainstream program of critical description (and one specific way for citizens to “understand the economy”) gets to be viewed as “economics” proper.

Dominant paradigm or neutral language?

The mainstream economist’s last-ditch reply to these claims is, by now, well known and predictable. What you call “mainstream” or “orthodox,” she will say, isn’t in fact a paradigm or a specific worldview. It’s merely a neutral language that allows to produce models which can, in principle, reflect any theory of the economy you might wish to present. In other words, the “language” of mainstream economics allows you to be a neoliberal but also a Marxist, an anarchist, or a social democrat. You can address any economic problem in that “language.” So the only reason it has become “dominant,” as you claim, is not political but epistemic: it’s simply a language that “works,” a grammar that’s flexible enough to serve as a common denominator for all kinds of paradigms to enter into “science”-based discussion.

This is a pretty powerful reply, and one that has quite strong repercussions among today’s students. We cannot just brush it under the rug. But let’s see what is being claimed exactly. The claim, as I understand it, is that mainstream economics is in fact not a theory of the economy, not a specific worldview, not a particular (set of) critical description(s) of the economy, but a sort of “meta-theory” that can help coordinate and confront all lower-level paradigms. So, in essence, the claim is that mainstream economics can itself embody the imperatives I have just set out for Critical Political Economy.

Actually, Part III of this book has offered reasons to believe that such may indeed be the case. However, as we must also infer from Part III, there is high a price to pay for mainstream economists if they really want to provide us with an overarching tool for building Critical Political Economy. If you want to provide a “language” with which agents can choose whether they want to be pro-market, be Marxists, or promote self-management, you have to introduce into your toolbox assumptions such as rational non-conformity, critical demystification, and Socratic cohesiveness. This, in turn, implies that any economics department that uses this toolbox has to call itself “department of Critical Political Economy” and has to spell the specific way in which it embodies the word “Critical.” Thus, following point (6) of my curriculum, it has to create a variety of streams of mono-paradigmatic teaching. In each of these streams, one “counterfactually unanimitistic” critical description of the economy has to be taught in full and presented to students as a possible motivating ideal for their opportunistic, CA-critical or OS-critical action as agents in the economy.

Along the way, the mainstream approach itself has to alter its own content so much in line with Part III that it effectively subverts itself in its claim to being “scientific.” It now becomes the coordinating “language” for various critical approaches to the economy, and as such it can no longer claim to monopolize the “right” method for “thinking like an economist.” Any economist offering a critical theory of the economy is thinking like an economist as long as she respects the requirements of what it means to build a critical description, which we rehearsed in Chapter 6—and this includes, most notably, points 1 and 2 of my curriculum.

So note very carefully that what I am saying here *is not a vindication of the current mainstream’s claims to be a “neutral” language*. With its unrestricted use of idiotic automata, mainstream economics today is extremely far from qualifying as the language in which to couch Critical Political Economy. In fact, as we saw, mainstream economics in its current state isn’t even able to provide a sustainable critical description of the economy, so that it wouldn’t even be taught in my curriculum! What Part III has done is to open up the possibility that *by subverting itself beyond recognition*, what is today the mainstream of economics in its complexity version may perhaps, one day, become the language in which a “post-orthodox” plurality of critical theories could be expressed.

The most lucid way ahead

The current situation of economics is awfully far removed from this idyll. It has come about through a one-sided, cumulative dynamics of the kind I discussed in Chapter 9. It is a result of a confused notion of “science” (one that excludes the notion of critical rationality at the agent level and locates it solely with the all-knowing economist) and of a power-driven politics of the profession. At the end of this book, there are no grounds to justify such a truncated conception.

The issues of how agents can harness social complexity for critical purposes and how the teaching and transmission of economic ideas is organized are two sides of the same coin. In a very significant sense, *economic methodology should be part of social ethics*—a position I share with the Frankfurt School, and which I have fleshed out by combining insights from Hayek, Horkheimer, and complexity economics. The way we model “our” agents’ acquisition of knowledge in our theoretical models is bound to reflect (even when we don’t intend it) our conception of how actual citizens ought to use ideas about the economy in their economic lives. This conception, in turn, is bound to affect the way those actual citizens perceive themselves in our complex economy. This is especially the case if the teaching of economics becomes part of the collective economic culture over several generations of students and citizens.

Therefore, transmitting an image of the economy as the interaction of sophisticated automata is apt to generate a generalized sense, on the part of

citizens, that this sort of interaction is what they ought to expect and adapt to, thus gradually turning the real economy into a mirror image of the model economy. Accordingly, to the extent that economists are progressives—and quite a few are—they need to become aware of the fact that the assumptions made in their models are not indifferent to the subsequent functioning of the economy itself. If progressive economists aspire to an economy in which agents perform CA- and/or OS-critical actions while critically accepting the prevailing norms of interaction, economists should not teach, and reason publicly on the basis of, models in which agents are unable to take such critical initiatives. What you call “economic reasoning” has to reflect the kind of economy you *would like to live in*.

The curriculum set out above is my own way of urging the profession to start with its own internal problems, as a token of an earnest desire to build a freer, more cognitively empowered economy. Economists can’t expect such critically driven emancipation to ensue democratically and from the bottom up if they don’t reform their teaching and the structure of their theories so as to make this desire for emancipation *visible* to the agents in their models, hence to themselves, hence to the citizens whose interests they purport to be embodying in their social roles as economists.

Obviously, this does not evacuate the need for widespread normative reflection on particular blueprints for a better economy. To the contrary, by seeing each economic paradigm as a political and human program, economists become honest to themselves as actors within an immensely complex economy whose “full reality” constantly escapes their grasp. Their meaningful generalizations and deliberate simplifications, which are part and parcel of any paradigm’s theoretical endeavor, are *political moves for cognitive empowerment* and are better seen as such. If we want economics to be consistent with the creation and maintenance of a genuinely liberating economy, Critical Political Economy is the only consistent and lucid way to move ahead.

Is there hope? Yes, I believe there is, provided the exact status of Critical Political Economy is understood.

One of the main reasons for me to write this book is that the teaching I received as a student was rather one-sided. Never once, outside of the few but significant lectures on the history of economic thought I had the opportunity to attend, did I hear the expression “*political economy*.” Being relegated to the historical backyard, this expression inevitably acquired an antiquated and touchingly dusty quality. Political economy, it seemed, was what older economists, those “worldly philosophers” of the past age, did before Walras, Jevons, Marshall, and the neoclassicists made it redundant. I had been among the first—but certainly not the last, and by far not the worst hit—victims of the systematic eradication of historical consciousness among students of economics. Not being prone to silent suffering, I adapted by shifting to ethics and to political philosophy, in a bout to reconstruct in private, so to speak, what was being deconstructed at the curricular level. If economic theory was to be a true tool for making the economy a better

place, I would have to figure it out largely by myself, hardly aided by an increasingly rarefied intellectual atmosphere in which pronouncing words such as “capitalism” or “alienation” was considered highly indicative of a softened brain. This seems to have changed somewhat in the very last years, in particular with the advent of the new institutional economics (see, for example, North 1990, 2005; Platteau 2000; Aoki 2001; Ostrom 2005). My own work in this book has some strong similarities with this growing strand of literature, but as ought to be clear by now, I also harbor some significant disagreements with respect to the new institutionalists’ treatment of “knowledge.”

Taking the “CPE test”

One way of understanding the rationale for my project is to see it as the trajectory of an economist trained in the mainstream and trying to move toward a renewed Political Economy. This book illustrates how an internal critique of mainstream economics leads us to re-insert it into a much broader dynamic framework in which various paradigms are made to coexist. Clearly, this way of seeing things has some strong connections with strands of what has become known as “ideational institutionalism” (Blyth 2002). It also has connections with the neo-Habermasian program of empowering democracy and the associated issues of how citizens could be made into fully fledged social critics and of how social scientists, as a result, should do theory (Bohman 1991, 1996). Therefore, to say it yet again, *Critical Political Economy is not designed as an “alternative” paradigm of economics*. Its aim is not to offer yet another theoretical outlook to be thrown into the already abundant bag of traditions potentially available in the academic arena. Rather, its goal is to provide a *filter*, or a set of *discrimination criteria*, that will determine two key things: (i) which available paradigms are in fact “scientific,” i.e., offer a genuine critical description of the economy, rather than a supposedly “positive” or “neutral” description or an ideological piece of rhetoric, and (ii) how these paradigms are to be coordinated within an open-ended, dynamic procedure of dialog and struggle. In that sense, *Critical Political Economy* fulfills a task analogous to the one Ken Wilber ascribes to the “integral framework” in contemporary philosophy:

Because the Integral Framework claims to be comprehensive or inclusive, each discipline using it has been able to reorganize itself in more comprehensive, effective, efficient, and inclusive ways. The Integral Approach *itself does not add any content to these disciplines; it simply shows them the areas of their own approaches that are less than integral or less than comprehensive, and this acts as a guide for reorganizing the disciplines.*

(Wilber 2006: ix, italics added)

In much the same way, Critical Political Economy itself does not add any content to existing economic paradigms. It simply shows them the areas of their own approaches that are less than fully critical. In other words, it displays to these paradigms the assumptions and presuppositions that render them unfit to be self-criticizing paradigms within a self-criticizing economic system. Thus, for instance, Marxist economics, Hayekian economics, as well as the New Institutionalism might be impelled by Critical Political Economy to move in directions that allow these paradigms to take their rightful place in the general endeavor of our modern economies to become more free and more self-reflexive. Each paradigm has to get to view itself as a tool for the critical harnessing of complexity. To do so, each paradigm—as I have suggested for the mainstream paradigm in Chapter 8—needs to work with critically rational agents and, short of embedding the theorist into her own theory by making her one of the agents in the model she’s writing and teaching, it has to acknowledge that it operates under a counterfactual assumption of unanimity, as if each agent in the theory had lucidly “voted” to be the kind of agent assumed in the model, engaging in the kind of interactions portrayed in the model.

In some cases, the paradigm might be able to accommodate these requirements. This is the case, I believe, for the new institutionalists, who can relatively easily borrow from, and interact with, “ideational institutionalists” and generate a paradigm of economic theory that explicitly acknowledges agents’ critical rationality and their drive for cognitive empowerment in a liberating economy. Other paradigms such as the mainstream paradigm in its current state might have a harder time doing this because, as I have argued, they are more strongly entrenched into atomistic views and into the corresponding criteria of “scientificity,” which require an absence of critical rationality and of reflexivity on the part of agents (see also Lawson 1997).

The curriculum suggested above is simply a first shot at such a “Critical Political Economy” Test—CPE Test for short. It would require more fleshing out than has been offered here. In particular, for a detailed discussion of one component of a more extended CPE test, based on a powerful consistency requirement called the “transcendental argument,” see Parthenay and Thomas-Fogiel (2005) and Parthenay (2008). What this book wanted to do, as a first step, was *to argue for the absolute and unconditional necessity of a CPE Test*. If, that is, economics wants to regain its status as a genuinely liberating and empowering scientific discipline and not just as a top-down and anti-pluralistic, albeit well-meaning, “scientific” enterprise. This is not an issue of orthodoxy or heterodoxy. It has to do with creating a “poly-doxo” that reflects, in each of its competing components, the overarching concern of Critical Political Economy: to “plan for competition” in such a way as to contribute to sustaining, and in return to be sustained by, a liberating complex economy.

Notes

1 Introduction

1 I wrote the first draft of this Introduction while on research leave at the economics department of Athens University. There, I was happy to learn that in Greek, the word “*idiot*” designates a non-publicly-minded individual, one who is *idiosyncratic* in the sense that his thoughts and actions revolve around himself and are infrequently, if ever, devoted to or directed at the community as a whole. This is the sense in which I will use the substantive “idiot” and the adjective “idiotic” here.

4 The use of uncritical knowledge in society

1 The mistrust of ‘constructivist’ theory is, of course, endemic in all of conservative social thought (see, for example, Honderich 2005: 32–68). But is the statement that “theory is socially detrimental” not an itself a theoretical statement? This is a well-known contradiction of those who claim to be “on principle” against theory. More on it in Part II.

5 The use of critical knowledge about society

1 This mutual compatibility between normative desirability, dispositional consistency, and historical feasibility is also what John Rawls (1971, 1993) is aiming at through his key concept of *stability* (see, for example, the discussion in Kukathas and Pettit 1989: 6–16). Jacques Bidet (1995) insists on the fact that, precisely, the dimensions of dispositional consistency and of historical feasibility are treated much too lightly by Rawls. According to Bidet, Rawls seems to think these dimensions are not affected by the “really existing” power asymmetries and inequalities of modern capitalism. This makes Rawls too optimistic when it comes to the plausibility, *in the eyes of the agents themselves*, of his veil-of-ignorance device and of the justification of his principles of justice. (For a critical discussion, see Arnsperger, 2006.)

8 A formal approach to critically rational action

1 I first heard of this idea from Yanis Varoufakis, who is currently developing it in a rather different form in a book in preparation, entitled *The Cunning of Freedom*. I am deeply grateful to Yanis for the enlightening conversations we had on such forms of “rational irrationality.”

10 Free-economy economics

- 1 That is, anyone who is not, at the time of reading, a selectively open quasi-monad. But then again, such a quasi-monad would not even have found it optimal to devote resources to reading this book, since it has no cognitive resources to understand the word “book.”
- 2 In that sense, I would go as far as defining an ultra-low-density interaction mechanism as any mechanism A for which there exists at least one non-interactive mechanism B such that were B implemented, it would allow a set of agents to reach the same level of knowledge and/or information as the original, A .

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