THE AUSTRIAN AND BLOOMINGTON SCHOOLS OF POLITICAL ECONOMY

ADVANCES IN AUSTRIAN ECONOMICS

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ADVANCES IN AUSTRIAN ECONOMICS VOLUME 22

THE AUSTRIAN AND BLOOMINGTON SCHOOLS OF POLITICAL ECONOMY

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Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2017

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-78714-844-4 (Print)
ISBN: 978-1-78714-843-7 (Online)
ISBN: 978-1-78743-273-4 (Epub)

ISSN: 1529-2134 (Series)

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AUSTRIAN ECONOMICS AND THE BLOOMINGTON SCHOOL: AN INTRODUCTION AND OVERVIEW

Paul Dragos Aligica, Paul Lewis and Virgil H. Storr

INTRODUCTION

The Austrian and Bloomington Schools of political economy should be in conversation with each other. Both traditions have done much to encourage our focus on the various patterns of order in human societies. Both traditions have also improved our understanding of the challenges of collective action, the limits of centralization/monocentrism, and the potential of polycentric systems to effectively utilize local knowledge. Additionally, both traditions have engaged in empirical strategies that have privileged being 'on the ground' and efforts to understand their subject's point of view. Although they have explored similar territory, and a few scholars have contributed to both traditions, the links between the two schools are not as thick as they might be. This volume hopes to deepen these connections.

As a matter of intellectual genealogy, the link between Austrian economics and the Bloomington School of institutional analysis is mediated by the Virginia School of political economy, spearheaded by James Buchanan and Gordon Tullock, and the intellectual revolution that it sets in motion in social science in the 1960s. The Virginia School promoted an unromantic approach to the study of politics that treated political actors as self-interested and political processes as a form of exchange. The Virginia School influenced and

was influenced by both the Austrian and Bloomington Schools, especially their emphasis on how rules shape the orders that emerge and the potential of bottom-up strategies to solve collective challenges. A secondary route could be traced through the ordo-liberal influences that Vincent Ostrom and Elinor Ostrom, the founders of the Bloomington School, absorbed while trying to calibrate and nuance their own take on the Public Choice paradigm. Third, both the Austrian and Bloomington Schools share a basic Tocquevillian background and pivot on the twin themes of individualism and self-governance.

Vincent and Elinor Ostrom's distinctive brand of institutionalism was crystalized in the 1960s as part of an on-going conversation taking place in an interdisciplinary network of scholars, gravitating around the pioneering work of James Buchanan and Gordon Tullock.[1] The Public Choice revolution had unmistakable roots in the Austrian tradition. Austrian economics, with its analysis of comparative economic systems (the feasibility of socialism and the nature of socialism), of bureaucracy (the rationality of hierarchical and rule-based decision-making systems), and of political economy (the nature and functioning of the state), had a significant impact on the way Public Choice scholars framed their approach.

In addition to their contribution to the general effort by members of the Public Choice community to articulate the foundational aspects of their emerging program, the Ostroms took on the particular task of addressing the field of public administration. More precisely, they applied the insights of public choice to local and municipal governance and public administration. Driven by the logic of applied, problem-driven research, the Ostroms soon discovered that the increasingly stringent neoclassical constraints – constraints that, once it took off, the Public Choice program started to assume – drastically limited the analytical range and effectiveness of their applied investigations (Boettke & Aligica, 2009, pp. 116–136).

As a result, the Ostroms had to return, again and again, to the non-mainstream, non-neoclassical roots and dimensions of Public Choice. In doing so, their perspective on Public Choice increasingly recovered, reinvented and developed several Austrian themes: the role of knowledge in society; the nature and significance of entrepreneurship (in particular, in their case, public entrepreneurship); the importance of dynamic competition (in their case, competitive governance based on Tiebout effects); the possibility of self-governance as a function of freedom of exchange and freedom of association; and, last but not least, and especially in Vincent Ostrom's later work, how norms and cultural evolution matter for democratic governance.

All of the above tendencies were reinforced by the Ostroms' exposure to Ordoliberalism. There are deep ties between the Austrian School and ordoliberalism, especially their shared conception of the competitive order (Kolev, 2015). The Ostroms' interaction with the German scholars developing Ordoliberal themes exposed them to a program that was in many respects related to US Public Choice. There was in ordoliberalism similar echoes and interpretations of the basic set of ideas associated with a tradition of thinking about economics and politics as entangled phenomena in which the normative dimensions matter. Yet, in the ordoliberal case, those ideas were coming through a different route and were filtered through a different framework. In this respect, the ordoliberals' concerns with the concentration of power and monopolies resonated profoundly with the Ostroms' own concerns about monocentricity.

The relationship between the Austrian tradition and Bloomington institutionalism has to be seen as part of a larger intellectual evolution of a family of schools of thought, all having, in one form or another, some roots in the themes, approaches, and positions advanced initially by Viennese scholars at the beginning of the 20th century. These ideas coevolved in multiple streams over the next 60 years or so. The Bloomington scholars, once they managed to delineate the broader parameters of their own research program, started to reconstruct, reinterpret, and in many cases simply rediscover and reinvent Austrian insights and themes. As such, they created the possibility of giving those insights and themes new interpretations and new applications, in novel circumstances with new research priorities, in particular, public administration, governance and collective action, and entrepreneurship in non-market settings.

Was there a programmatic and explicit effort to recover and reinvent the Austrian tradition? The answer has to be an emphatic 'no.' But that is precisely the reason why the Ostroms' work should be interesting to scholars working in the Austrian tradition. The thematic convergence and the compatibility and complementarity between the Austrian and Bloomington Schools are driven by their internal underlying theoretical logic and by the logic of problem solving. Upon closer inspection, the underlying familial and genealogical connections reveal themselves again and again.[2]

The convergence and interplay between these two intellectual traditions are rich and productive. On one hand, it stands as a demonstration of the applied relevance of the set of approaches and issues that we traditionally associate with the Austrian tradition.[3] On the other hand, it is a challenge to further explore and elaborate this area. This volume is an attempt to respond to that challenge.

THE ESSAYS

The collection begins with Hartmut Kliemt's "ABC – Austria, Bloomington, Chicago: Political Economy the Ostrom Way". Kliemt compares the Austrian (A) and Bloomington (B) Schools not just by reference to each other, but also by examining how their work relates to the approach adopted by the Chicago School of Economics (C). Taking Ludwig von Mises as his representative of Austrian economics, Kliemt notes that both Mises and the Ostroms adopt a subjectivist ("mindful") approach to economics, according to which it is essential in studying the social world to understand how the relevant people understand and interpret their circumstances. This contrasts starkly with the objectivism or behaviorism characteristic of the Chicago School, whose ("mindless") 'maximization-under-constraints' approach focuses only upon (the search for) behavioral regularities and ignores the internal point of view of the relevant economic actors (pp. 3, 5–6, 12–13). Kliemt argues, however, that Mises and the Ostroms part company on the question of how to develop this subjectivist approach, differing in particular on the extent to which the "internal" knowledge of people's subjective views afforded social theorists by *verstehen*, must be supplemented by "external" knowledge of law-like regularities linking actions and outcomes if adequate social analyses are to be done. In Kliemt's view, Mises comes close at times to suggesting that purely internalist approaches are sufficient, a one-sided perspective that Kliemt contrasts unfavorably with the way that the Ostroms seek to combine an internalist emphasis on the importance of people's subjectivist interpretations with an externalist emphasis on the importance of empirical knowledge concerning how causes (actions) lead to effects (outcomes) (pp. 7–9).[4] Put slightly differently, Kliemt can be thought of as arguing that the Ostroms rightly place more emphasis on the importance of explicating the underlying causal mechanisms through which people's actions, as informed and shaped by their subject interpretations of their circumstances, are transformed into outcomes of interest (cf. Kieser & Ostrom, [1982] 2000, pp. 58–60).[5]

Kliemt also compares the Misesian version of Austrian economics to game theory, as developed first of all by Austrian economist Oskar Morgenstern and as embodied for Kliemt's purposes in the more recent work of Reinhard Selten. Just as Mises' praxeology is an attempt to work out the implications of the a priori claim that people act purposefully, choosing means that enable them to pursue their ends, Selten develops an a priori theory of rational human conduct in situations of strategic interaction. In sharp contrast to Mises, however, Selten does not believe that his theory can yield (synthetic a

priori) knowledge of the real world. On the contrary, Selten maintains that his theory is no more and no less than a philosophical tool for understanding ideal, cognitively unconstrained human beings, and that if explanations of the real world are required, a different, more empirically grounded approach is needed. Such an approach was of course developed by the Ostroms, who departed from the ideal situations analyzed by Selten to examine the behavior of boundedly rational individuals who lack common knowledge of their circumstances, using game theoretic models as a foil against which to compare concrete real-world cases rather than as a model of the real-world per se (pp. 10–13).

The Ostroms' emphasis on concrete, real-world cases also marks another point of departure from Misesian position, for it is indicative, Kliemt argues, of the way in which Mises and the Ostroms part company on the question of the nature and significance of empirical evidence. As is well known, Mises believed that the so-called 'action axiom', according to which human conduct must necessarily be thought of as involving the choice of means to pursue goals, is apodictically certain and so invulnerable to criticism based on empirical findings. In stark contrast, Kliemt argues, the Ostroms set much greater store on the possibility of amending one's theory of rational action in the light of the empirical evidence provided by detailed case studies of real-world situations (pp. 4–5). The shortcomings of Mises's views about the role and status of theoretical claims are, Kliemt argues, shared by members of the Chicago School. For Kliemt, the Chicago practice of requiring—whether realistic or not—that human behavior must be (described as) maximizing and in equilibrium if an explanatory model is to count as economic is from an empirical science point of view no more respectable than the Austrian claim that all behavior must be understood in praxeological terms if an explanation of it is to count as economic. Both strategies try to create a monopoly for their own methodological views on economics by making them part of the definition of economics. However, we should leave the choice of the best means to achieve the ends of science open to creative processes of scientific competition. For Kliemt, the pluralist approach to methodology adopted by the Ostroms, exemplified by their willingness to use empirically grounded fieldwork and experimental methods as well as more abstract, technical approaches such as game theory and agent-based modeling as part of their tool kit for getting to gris with the complexity of the real world is much more compelling than the narrower, more prescriptive methodologies adopted by Mises and advocates of Chicago economics.

Paul Lewis's study uses the theory of complex systems as a conceptual lens through which to compare the work of Friedrich Hayek and Vincent Ostrom

and Elinor Ostrom. It is well known that, from the 1950s onwards, Hayek conceptualized the market as a complex adaptive system. On his account, the market is a system that consists of a set of elements (people) whose interactions are governed by a set of (legal and moral) rules that displays structural or emergent properties (in particular, the capacity to self-organize), and which develops over time on the basis of an evolutionary process that acts on its emergent capacity to coordinate people's plans in the face of tacit and dispersed knowledge. Using the theory of complex systems as a framework through which to view the work of the Ostroms, Lewis argues that, while the Ostroms began explicitly to describe polycentric systems as a class of complex adaptive system from the mid-to-late 1990s onwards, they had in fact developed an account of polycentricity as displaying the hallmarks of organized complexity long before that time. The Ostromian and Hayekian approaches can thus both be seen to portray important aspects of society – the market economy in the case of Hayek, and public economies, legal and political systems, and environment resources in the case of the Ostroms – as complex systems.

Lewis argues that, in addition to bringing out the long-standing affinity with the theory of complex systems displayed by the Ostroms' work, the use of the theory of complex systems as a lens through which to view the Hayekian and Ostromian approaches serves two other purposes. First, it can be used to show how one widely criticized aspect of Hayek's theory of society as a complex system, namely his account of cultural evolution via group selection, can be strengthened against its critics. Lewis argues in particular that, when taken in conjunction with recent development in evolutionary biology, Elinor Ostroms' work can be deployed to defend Hayek's theory of group selection against critics who argue that free riders will, by benefitting from being part of the group without incurring the costs of conforming to the relevant set of rules, undermine its beneficial group-level properties. Second, invoking the theory of complex systems also helps to resolve a tension – ultimately acknowledged by the Ostroms themselves – between some of their explicit methodologic pronouncements, which emphasized the importance of treating the individual person as the key "unit of analysis," and the actual, substantive approach they adopted in their analysis of polycentric systems (which set considerable store not only on individual action but also on the importance of structurally or relationally defined social systems whose properties cannot be reduced to those of individual people).

In a chapter entitled, "A Practical Approach to Understanding: The Possibilities and Limitations of Applied Work in Political Economy," Jayme Lemke and Jonathan Lingenfelter focus on the implications of Austrian

economics and the Bloomington School for applied economics. As already noted, the hallmark of the Austrian school is its commitment to subjectivism, according to which a key part of any explanation of social phenomena lies in identifying how the relevant people view their circumstances (both current and future). For a subjectivist such as Hayek, economic analysis must always commence from the subjective meanings that individuals attach to their circumstances, before identifying the causal mechanism through which their ensuing actions give rise to economic phenomena of interest (Hayek, [1952] 2010, pp. 91–107). But if that is the case, then there arises the question of how applied researchers can identify, understand, and so gain epistemic access to such beliefs. Lemke and Lingenfelter consider first of all the answer given to this question by Austrian economist Don Lavoie.

In a series of essays written in the 1980s and 1990s, Lavoie argued that the key to seeing how this question can be answered lies in rethinking in the principle of subjectivism (Lavoie, ([1985] 2011, 1986, 1991). Lavoie contended in particular that whereas the traditional conception of subjectivism that informed the human sciences in the late nineteenth and early twentieth century portrayed it as specialist method hinging on the ability of researchers empathetically to grasp the meanings that people attributed to their surroundings and actions, more recent developments in social theory and philosophy had suggested that interpretive understanding is in fact something much more mundane, which normal people accomplish without difficulty on a daily basis in their everyday lives. More specifically, for Lavoie, people are social beings whose efforts to interpret the world and imbue it with meaning are informed by inter-subjectively shared social rules. This reliance on shared rules implies that people are able to understand each other's meaning without having to engage in implausible acts of mind reading. On this view, rather than being conceptualized in epistemic terms, as a specialized technique for studying human activity, *verstehen* is best understood ontologically, as an account of human nature according to which people in everyday life draw on shared rules and interpretive schemes to interpret the world and in doing so reproduce or, on occasion, transform the rules and interpretive frameworks in question everyday life (Lewis, 2005, pp. 294–299; Prychitko, 1994, pp. 311–312). As Lemke and Lingenfelter observe, Lavoie defines the hermeneutic or interpretive enterprise as "the way in which ... in the sciences, the arts, history, and everyday life, we manage to come to an understanding of other people's actions and words" (Lavoie 1994, p. 55; quoted by Lemke and Lingenfelter, p. 88).[6]

One implication of Lavoie's perspective, emphasized by Lemke and Lingenfelter (pp. 75–76, 83–84), is that social scientists need not rely on

some mysterious power of empathy in order to grasp how their subjects interpreted viewed the situation they faced. On the contrary, if social scientists are studying the actions of members of their own society, then like people in everyday life they are able to draw on their common understanding of inter-subjectively shared rules in order to interpret and understand the behavior of other people. As Lavoie put it, "what we are 'getting at' when we understand is not the private contents of individual heads, but public discourses that are readily accessible" (1994, p. 59). The interpretive task is of course more difficult where the subjects under investigation are members of a different culture, removed from that of the investigators in space or time, and who therefore rely on a different set of rules. But that challenge is not insurmountable because, as Lemke and Lingenfelter note, investigators can draw on their familiarity with their 'own' set of rules to learn those prevailing in other cultures (p. 16). Their efforts to do so are facilitated by the availability of tangible evidence of the rules in question, and the meanings to which they give rise, in the form of written records found in archives and in oral testimonies obtained by the researchers by researchers. Such qualitative evidence, gathered through archival research, oral histories, ethnography, and in-depth case studies, would according to Lavoie and other advocates of the 'interpretive turn' play as least as an important part in applied economics as conventional econometrics (Chamlee-Wright, 2010, 2011).

Lemke and Lingenfelter maintain that in their efforts to address the question of self-governance – that is, the question of how people design and enforce rules that keep their behavior in check – the methods used by the Ostroms and the other members of the Bloomington School exemplify the approach advocated by Lavoie and his fellow advocates of the 'interpretive turn.' Lemke and Lingenfelter argue, in particular, that the Bloomington School's emphasis on the importance of using qualitative methods to identify the rules on which people actually rely in a particular situation, the so-called rules-in-use, can be thought of as an example of the subjectivist approach advocated by Lavoie and his fellow Austrians (pp. 79–82). According to Lemke and Lingenfeter, this sensitivity to the rules actually used by people provides an important antidote to objectivist approaches that simply assume that the rules officially in use, or rules-in-form as the Ostroms term them, are the ones actually governing the use of common property resources. And by altering people to the possibility that the rules-in-form may be different from the rules-in-use, the interpretive approach makes it more likely that analysts will be alert to the possibility that people may have been able to craft a system of informal operational rules that enables them to manage the resource so as to avoid the tragedy of the commons (pp. 82–84). "When

considered in this way," Lemke and Ligenfelter (p. 85) conclude, "analysis of institutions as they actually exist—which is significantly different from types of discourse that consider institutions as ideals—cannot be seriously undertaken by any approach *other* than the interpretive."

In their chapter "The Organizational Evolution of the American National Red Cross: An Austrian and Bloomington approach to organizational growth and expansion", Laura Grube, Stefanie Haeffele-Balch, and ErikaGrace Davies use the Austrian School's critique of bureaucracy and the Bloomington School's discussions of monocentricy to analyse the declining effectiveness of the Red Cross in responding to major disasters. Since its founding in 1881, the American National Red Cross has been a key player in charitable efforts to respond to and recover from natural disasters. The organization has a long track record of coming to the aid of those in need and is certainly the most well-known and perhaps the most well regarded charity operating within this area. The Red Cross also works closely with government agencies and the federal government delegates some of its relief responsibilities and activities to the organization.

Recently, however, the Red Cross has been criticized for underperforming. In the aftermath of Hurricanes Katrina and Sandy, for instance, the Red Cross was slow to get aid to those who needed it the most. As Grube et al. argue, the Red Cross' organizational structure has changed over time and these changes have altered its capabilities. As both the Austrian and the Bloomington Schools explain, bureaucratic and monocentric systems are likely to underperform polycentric systems in dealing with novel situations such as after a disaster, where creative rather than formulaic responses are required. The Red Cross, they find, has become more bureaucratic, centralized, and rigid as its relationship with government agencies has deepened and it has become increasingly enmeshed with governmental responsibilities. As they conclude, the problems plaguing the Red Cross' disaster recovery efforts are, thus, endemic and are not easily remedied.

In his chapter on "Covenant and Moral Psychology in Polycentric Moral Orders", Anas Malik discusses the assumptions about moral psychology made by the Bloomington School. By 'moral psychology', Malik means "the subjective and inter-subjective moral considerations that shape people's interactions" (p. 117). He focuses on the role played in Bloomington School accounts of the constitution of political order by the notion of covenant, understood as the "sense of obligation to consider the interests of the other in decision making, and a commitment to do so that is not easily or unilaterally broken" (p. 108). By promoting trust and a sense of obligation to consult others and to take their interests into account in institutional design, Malik

contends, "the culture of covenant … promoted habits of heart and mind associated with self-governance" (p. 109).

Malik contrasts the prominence accorded to the notion of covenant in the work of the Bloomington School, in particular, the writings of Vincent Ostrom, with the Austrian School's commitment to the principle of subjectivism. He argues in particular that the subjective value theory to which Austrians typically subscribe is insufficiently rich to do justice to the motivational force of the covenantal injunction to consider the interests of others, which – he maintains – "is not easily reducible to the calculation of individual self-interest" (p. 118).[7] In raising these issues, whose significance he illustrates using a discussion of climate change, Malik raises interesting and important questions about the ontological foundations of Austrian economics, concerning, in particular, the assumptions it makes about the nature of the human agent and the motivations that drive people's actions.[8]

Deliberations about the human nature, and about constitutions, also feature prominently in Ion Sterpan and Richard Wagner's chapter on "The Autonomy of the Political within Political Economy." Sterpan and Wagner's goal is to transcend approaches that, they argue, reduce the political either to ethics or economics by adopting an open-system approach that allows distinctive scope for political activity. Sterpan and Wagner argue first of all that if the economy is viewed – as they believe it should be – as an open system in which people's decisions are not simply a determinate response to their circumstances, then there will arise outcomes that are genuinely surprising in the sense of being outside the realm of what people considered to be possible (Shackle, 1972).

In the face of such radical uncertainty, outcomes may arise that are not covered by the extant framework of legal rules. And it is in dealing with situations of this kind that, according to Sterpan and Wagner, the scope for genuine political activity arises. Drawing on the work of Vincent Ostrom, Friedrich Wieser, Carl Schmitt, and Bertrand de Jouvenal, amongst others, Sterpan and Wagner argues that political entrepreneurs exercise leadership in persuading their fellow citizens to accept new systems of rules to which the novel outcomes can be assimilated. Moreover, in persuading people of the merits of committing themselves to this new system of rules, political entrepreneurs also help to forge people's sense of themselves – that is, their identities – thereby shaping their preferences. In this way, Sterpan and Wagner argue, "The open nature of the social system provides an opportunity for political enterprise in rules … [whereby] [t]he political appears as a social answer to the challenge of the exception to routines, as they reside both at the social and at the subjective level" (p. 137).[9]

Sujai Shivakumar's "Innovation as a Collective Action Challenge" examines how the actors involved in innovation deal with the many collective action problems that arise in the course of transforming academic research into commercially viable products. For Shivakumar, innovation takes place via a complex, non-linear and polycentric process whose participants include a wide variety of actors (including researchers, university administrators, entrepreneurs, venture capitalists, corporations, and public officials). A distinguishing feature of how the process operates in the United States is the absence of an over-arching national innovation strategy, designed to coordinate these activities and thereby foster the development and commercialization of new ideas. Shivakumar draws on the work of the Bloomington School to argue that what might at first glance appear to be a "seemingly chaotic … system of policies, programs, and funding streams" can in fact "spur rapid innovation and adoption and new technologies" (p. 162). In particular, hybrid arrangements or public–private partnerships can arise as agents devise rules that change the incentives they face, and also generate information, in ways that enable them to solve recurrent collective action problems. For example, public goods problems arising in the case of innovation "can be overcome in selective cases through crafting R&D consortia, where the participating firms funnel research, that is, upstream from the market into a separate organisation where it is carried out collectively … By crafting a framework for pre-competitive cooperative research, an industry consortium can help individual firms or research groups … bring new technologies more quickly and cheaply to the commercial market" (p. 167).

The contributions to this volume illustrate the wide and complex range of themes and issues – from foundational and epistemological to applied and policy relevant – that are illuminated by the confluence of the Bloomington and Austrian Schools. In conjunction, the two open up rich and novel perspectives while, at the same time, adding new depth and nuance to older and otherwise familiar themes and approaches.

NOTES

1. See especially Buchanan and Tullock (1962).
2. For more detailed comparisons between Austrian economics and the Bloomington School, aside from the essays collected later, see Boettke and Candela (2015) and Boettke, Lemke, and Palagashvili (2015).
3. There have been several attempts to combine insights from the Austrian and Bloomington Schools, see especially Boettke and Coyne (2005), Boettke, Palagashvili, and Lemke (2013), Grube and Storr (2014) and Storr, Haeffele-Balch and Grube (2015).

4. For a clear statement of the Ostroms' position on this issue, see V. Ostrom ([1973] 2008, p. 2).
5. For more on the notion of a casual mechanism, see Lawson (1997, p. 21), Lewis (2015a, pp. 1172–1175), and the essays collected in Hedström and Swedberg (1998).
6. For more on Lavoie's "hermeneutic turn," on its connections with empirical work, and on the controversy it caused within Austrian economics, see Vaughn (1994, pp. 127–133).
7. A similar argument is made by Hartmut Kliemt (pp. 30–32), who criticizes Hobbesian and Chicago school's efforts to reduce the notion of political obligation to calculations of self-interest, arguing to the contrary that a satisfactory analysis of the possibility of self-governance requires the acknowledgement of a broader set of motivations than can be encompassed by the standard model of *homo oeconomicus*.
8. Similar questions have been raised by some Austrians in recent years. See, for example, the introduction to Garnett, Lewis, and Ealy (2015), along with the other essays in that collection.
9. For more on Austrian views on the nature and significance of identity, see Chamlee-Wright and Storr (2009) and Lewis (2015b).

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ABC – AUSTRIA, BLOOMINGTON, CHICAGO: POLITICAL ECONOMY THE OSTROM WAY

Hartmut Kliemt

ABSTRACT

Bloomington scholars are critical of the rather wide-spread "Model Platonism" of both Austrian and Chicago economists. Their empirical, B, perspective avoids the more extreme views of both Austrian "mindful economics," A, and Chicago "mindless economics," C. Yet the B is not a mere convex combination of A and C. It is rather a psychologically grounded empirical evidence-oriented approach that keeps clear of the non-empirical spirit of von Mises' and Selten's methodological dualism on one hand and the instrumentalist and behaviorist spirit of much of neo-classical economics on the other hand.

Keywords: Internalist and externalist explanations of human action; theory absorption; behaviorism; cognitive psychology; mathematical praxeology; game theory

The Austrian and Bloomington Schools of Political Economy
Advances in Austrian Economics, Volume 22, 1–33

ISSN: 1529-2134/doi:10.1108/S1529-213420170000022001

1. INTRODUCTION AND OVERVIEW

"*Austrian economists* accept orthodox views of choices and constraints, but they emphasize uncertainty and question whether one should regard outcomes as equilibria, and they are skeptical about the value of mathematical modeling" (Hausman, 2003). This characterization applies to the members of the Bloomington School of Political Economy too. Paul Aligica's and Peter Boettke's excellent and comprehensive Austrian accounts of the Bloomington School[1] should, however, not be interpreted as locating "Bloomington" intellectually within "Austria."[2] To exemplify why this is so I shall in this chapter focus on Ludwig von Mises' methodological dualism.[3] For, '(e)ven if not all aspects of his theoretical system – such as, for instance, his apriorism – find general acceptance, it is, in particular, his methodological dualism that seems to have become a rarely if ever disputed core tenet of the Austrian paradigm. I. Kirzner (1978, p. vi) certainly expresses a commonly shared view when he approvingly notes: "Economics, Mises explained again and again, is a discipline the character of which differs drastically from that of the natural sciences" ' (Vanberg, 2004, p. 10).

Like Viktor Vanberg I think that methodological dualism is the core tenet of Austrian economics. Unlike Mises and many of his followers, yet like Vanberg and the Ostroms, I believe, however, that in economics there is room for research whose character does *not* differ "drastically from that of the natural sciences." I join Vanberg and the Bloomington scholars also in supporting much of the Austrian criticism of neo-classical Chicago type "mindless economics."[4] Yet I will present and evaluate these criticisms against the backdrop of "The Theory of Games and Economic Behavior" which "was a natural outgrowth of several earlier ideas of Morgenstern's and must be appreciated as a milestone in the evolution of Austrian Economics" (Schotter, 1992).

Interpreting pure game theory in an Austrian spirit that does justice to the role of mathematics I shall take my inspiration from Reinhard Selten. Like Ludwig von Mises, Reinhard Selten referred to himself as a methodological dualist (1999). Selten's is akin to – and possibly at least indirectly inspired by – von Mises' methodological dualism in some essential regards.[5] Yet it also differs instructively from both, Mises' Kantian apriorism and Elinor Ostrom's skepticism concerning the legitimacy of a priori arguments in science.[6]

Presumably due to "mathematics aversion" Austrian economists – of course with notable exceptions like Andrew Schotter – to the present day insufficiently appreciate the many relationships of Austrian economics to game theory.[7] In particular Reinhard Selten's and John Harsanyi's conception of pure (eductive[8]) game theory is the result of a non-empirical effort to explicate[9]

the meaning of (ideal) "rationality" in interactive decision making of cognitively and emotionally unbounded decision makers. It shares Mises' focus on action and its causal effects in a teleological action model to an extent that would justify referring to it as "mathematical praxeology." It should, however, be noted that in contrast to von Mises, Selten believed that besides ideal rational actor theory there could be an economic science with an ordinary empirical and nomological orientation. In this, his views coincided with those of the Ostroms. For the neo-classical maximization under constraints paradigm, that is nowadays conventionally associated with the Chicago School of Economics Selten and the Ostroms had not more respect than the Austrians – though unlike the Austrians they rejected it not for its aspirations to form an empirical science of economics but for its mis-specified empiricism.[10]

For the sake of isolating typical characteristics, the subsequent discussion will focus mainly on the more extreme views of Austrian "mindful economics," A, and Chicago "mindless economics," C, to confront them with the empirical Bloomington, B, perspective.[11] As will hopefully become clear, the B is not a mere convex combination of A and C.[12] In particular, Bloomington scholars are critical of the rather wide-spread "Model Platonism"[13] of both Austrian and Chicago economists in ways that locate the B at a critical realist position outside the AC line.[14]

To locate B more precisely, my discussion of the Bloomington School vis a vis Austrian and Chicago style economics commences by tracing back the "Model Platonism" that characterizes A and C to Hobbes' ideal of spelling out "more geometrico" the implications of the model of a "homo (o)economicus" (in his teleological, A, and his consistent, C, opportunity seeking incarnations) (2).[15] Next I shall drive the homo (o)economicus model to its two extreme specifications of mindful "reasoning about knowledge" (Austrian) game theory on the one hand and mindless (Chicago) "behaviorism" on the other hand, and contrast the A and C extremes with the experience driven, often case-based Bloomington approach (3). Against the backdrop of this, the scope and limits of unrealistic, ideal theories as opposed to realistic ones are somewhat more generally assessed (4). As a final thought, I shall point out that despite their different theoretical ideals *practical* libertarian ideals are shared by most political economists located in the ABC triangle (5).[16]

2. ECONOMICS "MORE GEOMETRICO"?[17]

Ever since Plato philosophers regarded geometry as the archetype of general theory. In a world of non-experimental "science"[18] swamped with competing

"explanatory" narratives[19] and no decisive empirical evidence,[20] reliance on what is logically evident seemed compelling for those seeking knowledge rather than merely persuasive opinion. With the ascent of a better understanding of what is purely mathematical (or logical) and what is to be critically examined in an empirical evidence-based manner, modern economics emerged. Axiomatization became a mere instrument of clear and systematic presentation of the empirical content of theories and of the antecedent conditions whose fulfillment has to be checked if theories are to be tested.[21] The reliability of substantive theoretical conclusions was not anymore seen as grounded in the a priori evidence of axioms but in the fact that implications derived from the empirical content of the theory were corroborated (when the axioms were fulfilled).

The criticism of a certain kind of misinterpretation of the role of axioms in mathematized theories should not be interpreted as implying a rejection of the role of mathematics in economics. The implications of theories must typically be derived by mathematical methods. Yet mathematical theorems must not be taken as substitutes for empirical theses. Even if, as is frequently the case, most of the work of successful (empirical) science consists in finding appropriate mathematical representations, the content of the theories and models so represented is non-mathematical. That something is formulated in mathematical language does no more render it a mathematical truth than translating a French truth into English will make it a specifically English truth henceforth. To express it with a kiss (keep it simple stupid): While empirical theories are tested for their empirical content under specific conditions mathematics is not tested but only facilitates testing.[22]

2.1. Non-Refutable Economic Theories?

From her field and laboratory work Elinor and from his careful account of case-based evidence concerning administrative and political governance structures, Vincent Ostrom had a clear sense of what it means to be testing theories via testing the models derived from them. To test theories this way, it must be shown, first, that the specific initial conditions are approximately fulfilled for the model derived from the theory. Under this condition, second, the model's implications can legitimately be treated as theoretical predictions – rather than as mere prophecies.[23] Then, third, the theory can be corroborated if the prediction is fulfilled otherwise it is refuted.

An Austrian who is not a Kantian can and, as I believe, should acknowledge that an axiom if non-refutable *within* his theory may remain refutable

along with it. This view of the status of basic axiomatic assumptions is compatible with B but not with an orthodox Misean claim of apodictic certainty of praxeology in point A of the ABC theory triangle. The, C, extreme according to which theoretical axioms are merely instrumental to the mathematical derivation of implications and therefore need neither be realistic nor be tested for their realism is incompatible with B as well. It neglects two important points: first, in the process of forming and testing successively more realistic models, the background theories of models can be corroborated or refuted; and, secondly, as stated before, a test of a theory requires that its antecedent conditions are approximately fulfilled. At least according to a critical rationalist/realist account, even the so-called axiom of action must stand the test of experience (along with the Austrian variant of economics for which it is constitutive).[24]

If it is claimed that economics as a discipline is *defined* by the (constitutive) assumption that all explanations must be given in praxeological – means to ends – terms, then one cannot do economics in *that sense* unless accepting the axiom of action.[25] Yet, contrary to this and quite in line with Mises' own views, practices of science itself can be regarded as means to pursue "given" human ends. If the end is to acquire "propositional" knowledge of law-like regularities that may be used to build technological systems of "prescriptive" – in the sense of Mokyr (2002) – knowledge, then searching for behavioral regularities might do better than the praxeological account. The thesis that the latter cannot happen is itself either open to tests and or it must be rendered a definitional truth.

Austrian economists who locate themselves at the extreme point, A, of the notional ABC theory triangle do not agree. In the tracks of Kant's account of classical Euclidean geometry, they claim to have access to apodictic infallible a priori knowledge in a kind of "geometry of rational practice."[26]

2.2. Synthetic A Priori Truths in a "Geometry of Rational Practice"?

As far as the relationship of pure rationality theory to the real world is at stake, extreme Austrians like Mises tend to think of their praxeology as a system of apodictic (absolutely certain) truths that have content and can be known a priori in a way corresponding to the traditional understanding of Euclidean geometry.[27] According to traditional views Euclidean geometry can be developed by consulting human reason alone and at the same time be known to represent experience truthfully. Likewise, to put their views rather crudely, for Austrian praxeologists the very concept of *human action* implies

a priori certain truths that are "necessary." To support this the time-honored Cartesian argument that one cannot think that there is no thinking without thinking is transferred to acts[28] and the alleged practical self-contradiction of engaging the act of denying that there are acts emerges.[29] Yet even if the apodictic status of the Archimedean starting point is conceded, Austrian economists still must fill it with content by a priori "logical" reasoning alone.

To the excellent mathematicians who propagated the use of the axiomatic method in economics since mid-20th century the search for a priori foundations seemed hopeless. Without raising claims to synthetic a priori truth for their theories they typically developed them in the (Hilbert/Bourbaki) spirit of formal mathematics.[30] Since formalism allows for any substantive interpretation that fulfills the axioms and any substantive economic conception can in principle be axiomatized, it is hard to see any systematic reason why Austrians mostly rejected and Chicago economists mostly accepted mathematization.

For Bloomington scholars, B, it is a substantive empirical question to what extent law-like regularities governing human choice behavior and mental processes leading to overt choices exist. To the extent that they do exist an ordinary science of human behavior is viable. However, Mises type Austrians, A, rule out such invariants a priori. They claim not only that besides ordinary social science there is *a* legitimate praxeological perspective on choice making but that the teleological, intentional action perspective is the *only* legitimate way to understand rational human behavior rationally. The Chicago types, C, also claim a monopoly on legitimate rational choice explanation yet require that behavior be explained as the result of overtly *consistent* choice making. To say it again with a kiss: According to A an economic account of human behavior must be in terms of intentional opportunity seeking behavior; according to C it must be in terms of overtly consistent equilibrium behavior while B tries to avoid any a priori judgment on such matters and uses plural methods.

In the background of such discussions are lurking, of course, certain views concerning the question of whether or not we should refer to disciplines as sciences only if they aim at testing law-like regularities, whether in the realm of human interaction such law-like regularities at all exist, and, whether due to the presence of human minds in its realm for so-called moral as opposed to natural science some kind of methodological dualism is appropriate and if so which. Since it seems to me better developed and much closer to the mathematical mainstream of economics I will next use Selten's rather than Mises' variant of methodological dualism to characterize where exactly Bloomington and Austrian views part company.[31]

3. INTERNALIST VS. EXTERNALIST EXPLANATIONS OF HUMAN BEHAVIOR

As far as the issue of Chicago behaviorism in modeling interactive choice making is concerned adherents of the Austrian and the Bloomington school are in full agreement. Both schools regard a purely objective perspective on overt behavior and external stimuli – constraints and incentives – as insufficient.[32] Adequate explanations of human interactive behavior must be based on an account of what human actors have on their minds, their perceptions of action situations, the common understandings, and the reasons for and reasoning about action prevailing in them. Bloomington scholars neither want to eliminate "meaning and intention" from the explanatory picture (unlike C) nor are they willing to grant to them a special ("ontological") status that renders the search for explanatory regularities futile (unlike A).

3.1. Nonpredictive Social Theory

"The meaning that individuals place on things, practices, places, and people determines how they will orient themselves in making decisions. The goal of the sciences of human action is intelligibility, not prediction. The human sciences can achieve this goal because we are what we study, or because we possess knowledge from within, whereas the natural sciences cannot pursue a goal of intelligibility because they rely on knowledge from without. We can understand purposes and plans of other human actors because we ourselves are human actors" (Boettke, 2008).

The preceding rather characteristically Austrian, A, passage distinguishes between "sciences of human action" that can rely on "knowledge from within" and "natural sciences" that "cannot pursue a goal of intelligibility because they rely on knowledge from without." Now, it is obvious that humans can, when participating in interactions, emulate the "internal point of view" to the action situation of other selfs (including their own and other future selfs). The Bloomington, B, view is that emulation can be conducted in cognitive psychology terms. To the extent that such cognitive psychology reconstructions lead to better *explanations and predictions* of human behavior *empirical* scientists *should* try to understand reasons for action from the internal point of view of human actors.[33] Bloomington scholars therefore reject both the Austrian view that rationality qua intentionality and the Chicago view that rationality qua consistency must be presupposed in ways that separate economic theory formation from empirical (cognitive or behavioral) psychology.

Mises type Austrians do not agree that cognitive psychology or other forms of *empirical* conceptions of rationality will be helpful to understand intentional action. As Bruce Caldwell (1984, p. 366, fn. 4) reminds us Mises' position 'has been dubbed the "demonstrated preference" approach' He points out – same page – that in Mises' approach "rational and action define each other" and then quotes Mises (1949/1998) 'The opposite of rational behavior is not irrational behavior but "a reactive response to stimuli."' The "demonstrated preference approach" does not accept that inconsistency in overt choices – for example, circular structures – demonstrates non-rational behavior. As long as behavior is intentional or teleological rather than caused it bears the hallmark of rationality. The actor responds to the action situation all by itself as start of a "new" causal chain and as subjectively perceived by the actor. This is different from a revealed preference approach to the extent that the latter assumes identical choice making in identical situations through time and imposes consistency. As opposed to this, taking each decision situation as causally separated from the past by the teleological future directedness of rational action Mises' position becomes strictly situationist. Making a different choice proves that the situation or intentions must have been different. Intentional causal influence on future consequences is constitutive for the rationality of an action. The "normative" consistency axiom concerning overt choice *behavior across situations* by which we can treat preferences as revealed allegedly does not make sense from a praxeological point of view.

The empiricist complaint that strict situationism empties the theory of empirical content does not worry the true Austrian. It is in line with the non-predictive nature of action and the praxeological theory of it. Yet, is extreme situationism empirically plausible?

The law-like regularity that connects the internal action situation with overt behavior may be exceedingly simple. The regularity could, for instance, be that human individuals *regularly* do what they intend to do (or should be expected to intend). Simple as it may be, this regularity is external to human intentions and fundamentally distinct in its status from an internalist ("hermeneutic") understanding of intentions. Note that the regularity is not brought about by human intentions and that it is exactly this intention independence that makes it useful for empirical predictions and for causal interventions based on them.[34]

The intelligibility created by acts of pure understanding ("Verstehen") leads to what may be called "narrative explanations." If pure understanding is the end then narrative explanations are (trivially) sufficient means. Yet if actors are engaged in interactive decision making in which they intend to get

their way, narrative understanding is not what they aim at. Only by claiming that an additional law-like regularity is operative can narrative explanations become part of law-based explanations that can lead to technologies.[35]

3.2. Types of Explanation

The corners of the ABC triangle can be associated with three concepts of explanation, respectively: (A) a *narrative* based on a shared understanding of intentions as a "purely internalist explanation"; (C) a "purely externalist explanation" that relates representations of overt choice making – for example, by a utility function *representing choices* from *objective* opportunity sets[36] – to overt choices and their consequences; (B) a "partially externalist explanation" that invokes at least one externalist regularity that is beyond the influence of human intentional interventions (in a non-eliminable way) when linking a (psychological) reconstruction of the action situation with consequences.

Empirical, in the last resort psychologically grounded, theories of human behavior do not accept that understanding "the logic of the situation" an actor faces is sufficient for explaining it. Understanding as interpretation cannot scientifically explain the subsequent actions without some assumptions concerning externalist regularities. These regularities are not implied by the logic itself. Perceptions and intentions do matter as antecedent clauses of the *technology* describing how a purposeful individual can and should act yet as such they are causally impotent without a law-like regularity projecting them "into" the world.

If extreme Austrians sometimes seem to suggest that explanations should be purely internalist, they miss their own boat of praxeology. Above all others Mises emphasizes that the teleology of individual action presupposes causation through acts. Yet causation presupposes some regularity according to which the intended consequences can be expected. Extreme Chicago types, on the other hand, intend to look at human behavior and to explain it without referring to cognitive processes in the mind (mindless economics). As experimental evidence – for instance from ultimatum game experiments – shows, it is, however, not viable to explain individuals' choice making in externalist terms relating overt incentives to overt behavior in such interactions.[37]

As far as the relevance of cognitive processes and mental models is concerned, Bloomington, B, lies much closer to Austria, A, than to Chicago, C. The subjectivist Austrian emphasis on understanding the logic of the action

situation from the internal point of view of the participating actors has developed into the "reasoning about knowledge approach" (Fagin, Halpern, Moses, & Vardi, 1995) of classical non-co-operative game theory. To this in spirit Austrian enterprise I turn next to argue that Elinor Ostrom conceded more than she should have from a Bloomington point of view when she claimed in her Nobel lecture that the IAD, institutional analysis and development, approaching of the Bloomington School is "consistent with game theory."[38] I believe that the Bloomington approach is consistent with so-called "behavioral game theory" (as popularly described in Thaler [2015]) based on some conception of boundedly rational interactive decision making (the behavioral side of Selten's street) yet is not in line with the classical full rationality approach of ideal game theory (the Austrian side of Selten's methodological dualism).[39]

3.3. Classical Game Theory as a Paradigm of "Austrian" Internalism

Oskar Morgenstern was an Austrian by birth, an Austrian economist by training, and an independent thinker by inclination. Throughout his career Morgenstern was interested in how common understandings of human minds, how theories about the world and how human knowledge of the world could influence the course of the world itself. What human individuals think and say about the causal forces operating in the world is itself a causal force that has to be taken into account in predictions of the course of worldly affairs.

For Morgenstern the conceptual distinction between absorbable and non-absorbable theories was essential. Theories that are *absorbable* can become widely and in the limit "commonly" known to rational individuals without becoming self-refuting while theories that are not absorbable in the relevant sense tend to subvert their own predictions.[40] For instance the so-called business climate may in fact improve if a theory about the world would predict an upturn and worsen if a downturn of business is predicted. Such a theory is absorbable in principle since knowledge of the prediction supports its realization. A theory that predicts a traffic jam at a specific place and time may prevent it from occurring and in that sense not be absorbable.

If we include theories and mental models of the world among the causal factors operating in the world, then absorbability is an obvious quality criterion for theories. In a world of fully rational beings who know all the theories about the world and the mental models induced by them, only absorbable theories can hold in equilibrium.[41] In such a world, the choices on which individuals plan will be dependent on the knowledge of the situation, their

own intentions, and what they presume others to know and to intend.[42] To illustrate – side-stepping some subtleties that may arise from taking the common knowledge assumption strictly – consider a very simple fully symmetric battle of the sexes, BS, game (Table 1).

For instance, a theory recommending to go for the best will suggest that He, the row player, attends the boxing event, and She, the column player should go to the cinema. If a theory implying these suggestions were presented publicly in the presence of the two actors, both would have a reason to deviate from the theory and its implied recommendations as long as each believed the other to know and to comply with the theory. If the theory suggested an alternative leading to results off the main diagonal, each of the actors would know that the other would have a good reason to deviate from the suggestion of the theory. From this we know that only those theories that suggest – neglecting so-called mixed strategies for the time being – pairs of strategies that lead to results on the main diagonal can become commonly known and command common compliance, that is, implying an equilibrium suggestion is a necessary condition for a theory of fully rational action to be acceptable.

Simply recommending to choose a cell on the main diagonal does not work for two reasons. First, none of the cells can be chosen in the proper sense, only rows or columns (acts) can be chosen. The emphasis on causal future effects of single acts being a central aspect of both von Mises' and Selten's conception of individual rationality implies that this restriction not only applies to moves – as in the simple BS game – but also to all strategic form representation of games. In these representations plans for all conceivable constellations that might conceivably arise in a play of a game are mapped on results.[43] Second, when the actors choose separately – that is, the performances of choice acts do not causally influence each other – the advice aiming for the main diagonal is unhelpful. Since "it takes two to tango" disseminating the theory does not resolve the remaining coordination problem.[44] The advice is like that of the old joke: When you reach the next crossing, take it![45]

From the preceding simple thought experiment, it is already clear that thinking in Austrian terms of theory absorption – a term used by Morgenstern

Table 1. Row Player Payoff First, Column Player, Payoff Second, the Larger the Better.

She/He	Boxing	Cinema
Boxing	(2, 1)	(0, 0)
Cinema	(0, 0)	(1, 2)

only after the seminal theory of games and economic behavior appeared but lurking in the background of that grand theory – implies that a sound theory of ideal rational strategic interaction that takes the human mind into account must single out equilibria. The upshot of this is that the focus on equilibria in so-called non-cooperative game theory is already implied by the original concepts of the so-called cooperative theory of games.[46] Thinking about the fictitious *ideal* world which would otherwise be free-floating is reined in by the absorbability constraint and assumptions of common knowledge.[47]

Like Austrian praxeology of the von Mises type, Selten's theory of ideally rational action is a priori and *non*-nomological. Pure ("normative") game theory is an a priori theory about planning minds, the logic of situations, common knowledge, and common understandings of cognitively unconstrained reasoning individuals. As a mathematical myth it may capture our minds and like a religious myth may causally influence our thinking.[48] Yet unlike Austrian praxeology which makes truth claims analogous to those of classical geometry, Selten's formal approach does not claim to capture structures of the here and now.[49] Moreover, for Selten, there can be an ordinary science of "human nature and the nature of human sociality and culture," that is, in contrast to the Austrian methodological dualism, Selten's has besides the non-empirical ideal theory a strictly empirical social science side which the more extreme interpretations of Austrian methodological dualism rule out.

Had the Austrians developed their original methodological dualism in Selten's epistemologically more moderate and mathematically more sophisticated ways they would have stayed closer to mathematical game theory – their own offspring – and thereby also to mathematical economics and at the same time could have left room for ordinary empirical social science.[50] Then the methodological differences between A and B would have been like those between the empiricist Bloomington orientation and Selten's methodological dualism. Elinor Ostrom in particular was skeptical about Selten's efforts to explore pure rationality conceptions separate from all contingent empirical issues. When he drives dualism to its logical extreme, she parts company with Selten. Yet Selten's as opposed to the Austrian dualism left common ground on the empirical side. Empirically minded Bloomington Scholars (and Austrian dissenters) are thinking of empirical social science in the same terms as Selten. Yet like the Austrians and Selten, they fundamentally disagree with the Chicago conception of economics as empirical science. As I shall argue next, no Chicago boys walk the truly explanatory empirical side of the street, regardless of the noise they make about predicting and testing predictions empirically.[51] At root of the problem but also concealing it lies

what euphemistically may be called a "dualistic interpretation" of the concept of a utility function.

3.4. The Extremes of Chicago Behaviorism

It is amazing how often economists who otherwise fully rely on the modern concept of "representative utility" speak as if they were using the old utilitarian concept of utility. They, for instance, say that an individual chooses an alternative X over an alternative Y *because* X has higher utility than the alternative Y. Yet, if u is taken to merely *represent* the order between alternatives,[52] the value of u is not itself among the reasons for preferring, that is, ordering. It is a dimensionless measure that represents orderings that arise from reasons for preferring alternatives. The reasoning that leads to the represented preference order must have taken place beforehand and, according to "mindful economics," in the mind of the individual whose preferences are *afterwards* represented by $u(X) > u(Y)$.[53]

After the stenography, u, for representing preference orders had been extended to lotteries, and it also had been shown that individuals whose preferences comply with the axioms that guarantee the existence of appropriate stenographic representations of necessity would behave *as if* maximizing "expected utility," E_u, economists who worked in an behavioral maximization under constraints paradigm started to use E_u as well.[54] They did not share Morgenstern's broadly Austrian subjectivist views according to which u represented some subjective attitudes formed in the mind of an actor considering choice options. They started to re-interpret u as representing *choices* and overt behavior rather than the mental processes and attitudes leading to these choices. In line with the behaviorist spirit of the times around 1950, economists thought that they could use Neumann–Mogenstern u in ways that leave mental processes of preference formation in the "black box." Along with the assumption that it suffices to consider a world that is in equilibrium they felt that they could safely focus on overt choices in a maximization framework. If overt choice *behavior* fulfilled the axioms, rational individuals would behave as if maximizing whatever the reasons for overt-behavior. Neo-classical economics could get rid of subjective reasoning and separate itself of cognitive psychology.

In sum, assuming a world in equilibrium (i.e., in which nobody could do better against the behavior of others) and rationality as (some amount of) intertemporal consistency, the neo-classical school associated with the capital C of Chicago felt justified in ignoring the mental processes driving the

dynamics of choice making and the psychological theories explaining those dynamics. Consistent choice makers would *behave* as if maximizing a choice representing utility, *u*.

It is ironic that the original Austrian *u* that clearly represented something mental (though as a dimensionless measure) has invited a Chicago (C) re-interpretation alien to the original intention. This re-interpretation is incompatible with both the Austrian (A) and Bloomington (B) approach. In pure Austrian game theory *u* represents the ordering after all things have been considered. Contrary to pure game theory that works only with well-defined games and utilities representing preferences "all things considered" empirically minded scholars like Elinor Ostrom work – more technically speaking – with *game forms* rather than games. Game forms capture the move structure of the interaction and *substantive* payoffs to which individuals can have all sorts of attitudes. Without common knowledge of rationality and preferences all things considered – represented by *u* – psychological processes or what is going on in the mind of actors when *considering* substantive payoffs can and must be explicitly modeled in their complex ways.

According to B and the empirical side of Selten's work, subjective decision processes and perceptions have to be incorporated into models – rather than being concealed by *u*. Therefore, instead of the optimization monism suggested by utility representations, Bloomington Scholars use multiple methods. They go for "real theories."

4. THEORIES OF IDEAL AND REAL WORLDS

A central distinction between Bloomington, B, type scholars, in particular the Ostroms on one hand and the more extreme Austrian, A, as well as the more extreme Chicago, C, scholars on the other hand concerns the status of ideal theories. Bloomington type scholars tend to be opposed to ideal theory. When addressing descriptive or prescriptive issues, they start from a thorough analysis of concrete cases.[55] If it comes to real-world institutions and practical matters, they insist on proceeding like good clinicians in medicine: there may be some general theoretical insights but good practice and working institutions must never be neglected.[56]

4.1. Case-Based Reverse Social Engineering

The Ostroms' favorite real-world examples of successful management of common pool resources are neither akin to ideal-type *state-enforced* private

property institutions[57] nor do they resemble monolithic administrative solutions imposed by a centralized state monopoly. The Bloomington School knows from real-world experience that collective action problems can often be solved without creating well-defined property rights (that should reduce transaction costs) or well-defined chains of command (that comply with ideal conceptions of efficiency-enhancing administrative behavior). Experience tells that whether it be individuals, groups of individuals or manifolds of governing bodies, those exposed to externalities can often self-organize to solve their problems in ways unforeseen by theory. Bloomington scholars also believe that real-world cases of successful governance structures imply some more general lessons on what works and what does not work. Lacking statistical evidence, analogies between cases may be the only thing to guide external interventions into processes of self-governance, and, in particular, resource management.[58]

The Bloomington approach is in ways that are typical for political scientists more case-oriented and at the same time more constructivist than, for instance, a typical Hayekian one.[59] For example, Vincent Ostrom's political theory of a compound republic as well as his work on the crisis in American public administration is perhaps best characterized as reflections on and exercises in reverse institutional engineering. Starting from the detailed knowledge of concrete real-world cases, it leads to suggestions of piecemeal institutional design. The proposals are in a moderate sense constructivist without being perfectionist. They are clearly not driven by ideal theory concerns[60] (in particular not by the implicit equilibrium assumptions of mechanism design) but by experience-based considerations of what is desirable within the constraints of what is observed to have been feasible and may be expected to be feasible as far as we can know.[61]

In the Bloomington approach, the case-based study of what is proven to be feasible (somewhere and at some time) by its very existence in social reality comes first. Our experiences of what has worked in the real world suggest principles which then may guide efforts toward institutional improvements. Theories may provide some guidance as far as the direction of improvements is concerned, yet the crucial test is always experience in a process of trial and error.[62] Its experiential and to some extent experimental orientation is perhaps the most characteristic feature of Bloomington vis-à-vis orthodox Austria and/or Chicago.[63]

This brings us back full circle to the criticism of broadly speaking Hobbesian ideal theory formation "more geometrico." The Bloomington School rejects justifying theories in terms of intuitive appeal of axioms[64] using a strict homo (o)economicus model in empirical explanations.[65] In short, the Ostroms are perhaps best described as Smithian institutional political

economists guided by real-world governance problems. A somewhat closer look at the Bloomington account of governance in comparison to other economic perspectives can illustrate this further.

4.2. Governance and the Homo (o)Economicus Model

There has been an economic theory of law, in particular of compliance with the law, ever since Hobbes (and even before him). Hobbes and the theorists following him intended to "reduce" the concept of obligation to the expectation of negative causal consequences for the obliged actor. This effort has, for the purposes at hand, two implications which the Ostroms reject: the first concerns how norms of law oblige; the second concerns the role of the obligation-creating sovereign.

To start with how norms of (positive) law oblige, in the strict Hobbesian and strict Chicago model of compliant behavior, there is an obligation to comply with a legal norm if and only if in view of the costs and probability of a *regularly* imposed future sanction, it is better to comply than not to. Obligation reduces to a simple opportunity cost calculation in expected external cost terms. The obligation to comply exists only if there is no better non-compliant alternative. Assuming for the sake of illustration a set of finite alternatives and strict preferences over them, a rational individual will comply with the law if and only if the single act of compliance ranks higher than any noncompliant alternative after factoring in all as a matter of fact expected future consequences. In forming her preference order, the rational actor will *not* consider the consequences of what would happen if she would always do the same or if everybody else would do the same (possibly according to some envisioned rule or norm).

If there is no intrinsic motivation to follow certain rules and norms, the existence of the legal order and compliance with it must be explained in terms of expanding circles of threats.[66] The "highest" individual at the center threatens other individuals through a *regularity* in his, the highest individual's *behavior*. The incidence of sanctions can be predicted if lower individuals threaten still lower individuals with sanctions due to regularities in their behavior and so on.

This leads on to the second implication criticized by Bloomington scholars, the role of "hierarchy" and a sovereign on top of it: if there is no intrinsic motivation then, according to the logic of the argument, the hierarchy of threats must expand until the whole society is under the spell of regularly expected sanctions. Very much in line with Chicago principles of rational

compliance, each and every individual rationally calculates whether it is better to comply than not to comply in each and every instance of choice. A stable legal order will exist if sufficiently many will sufficiently often have an appropriate extrinsic motivation to comply in terms of the regularly expected sanctions.

Though common experience shows that the expanding circles of threats conception of the emergence and maintenance of the legal order is absurd and was diagnosed to be so already by the British Moralists[67] directly following Hobbes it lingers on in economics, political, and legal science. It does so since it is the only economic theory of law and of politics compatible with a universal application of the homo (o)economicus model. The universal application of the model to all behavior leads to the conclusion that there must be a highest individual (or group of individuals threatening each other mutually in equilibrium) in the chain of threats, the sovereign. The sovereign cannot be bound by law since there is no higher entity in the chain of threats. Therefore, ultimately the sovereign must be "lege absolutus."[68] In sum, for a Hobbesian scholar (a run of the mill economic imperialist of the McKenzie and Tullock [2012] type) it is inevitable to conclude that there must be a sovereign and that the sovereign must be unbound.

The Ostroms understood always that examples like the preceding conception of expanding circles of threats show that the model of homo (o)economicus if taken at its word must be mistaken as a universal explanation of all aspects of social order. If this is acknowledged and intrinsic along with extrinsic motivation is admitted as a relevant real-world factor, then totally different forms of organization than those envisioned within a Hobbesian framework are feasible. Empirical, including experimental, evidence corroborates this, and the Bloomington School has been contributing to the by now overwhelming empirical evidence against classical homo (o)economicus as a universal behavioral real rather than a merely fictitious ideal type.

For instance, the fact that individuals in the real world get out of the traps of prisoner's dilemma structures even where there is no good reason to assume that some kind of folk theorem is operative speaks loudly against the Hobbesian approach to governance. The presence of some intrinsically motivated rule following is necessary. This is not to say, though, that it alone will do. An equilibrium order of partly constrained actors becomes viable only when motives based on retributive emotions[69] like inclinations toward altruistic punishment or to attribute esteem non-strategically[70] are factored in. Due to these deviations from future-directed extrinsically motivated opportunity seeking behavior, polycentric governance, federalism, and non-hierarchical self-governance become viable alternatives.

The preceding is of direct relevance to the Bloomington understanding of the workings of real-world institutions. For instance, in the account of the crisis in American public administration – a crisis of the theory as much as the practice of public administration – Ostrom and Allen (1973/2007) correctly identified the chain of threats view with the corresponding view that a chain of command was necessary. Since in the Hobbesian framework individuals are always fully opportunistic they cannot be guided by intrinsic motivation to contribute to the pursuit of common ends (either through direct contributions or one level up through indirect contributions by participating in enforcement rather than practicing second-order free riding). Moreover, according to the standard view, without a monopolistic center of command conflicting interests of governing bodies would inevitably lead to chaos.

As history, field experience with cases of the solution of real commons problems and as experiments indicate the alleged inevitability of a breakdown of spontaneous order does not exist. Polycentric governance structures that deliberately rely on equilibria that arise from externalities exerted by independent jurisdictional forces on each other can in fact lead to outcomes superior to both markets and hierarchies. This applies from highest levels of polities that are organized as federations to the lowest levels of political interaction among individuals in organizing local affairs, and will of course also apply to the nonpolitical level of interpersonal interaction. The Bloomington thesis is not that hierarchies can never be superior to other forms of organization nor that markets are always best. The crucial point is rather that what we should expect insofar depends on circumstances and our predictions based on real law-like hypotheses rather than some ideal theory. If the ideal theory is as misleading as the Hobbesian conception of governance, administration, and compliance, then it should itself be regarded as a negative causal force whose impact on the world must be counteracted (causally) by criticism if the world is to become a better place.

5. TO MAKE THE WORLD A BETTER PLACE

The Bloomington School is certainly not merely interested in understanding the world. Making the world a better place was on the minds of the Ostroms both on a personal and abstract theoretical level. They were certainly much closer to some kind of American pragmatism concerning the justification of institutions and their underlying norms and principles than Austrians with their predominantly rights-based views[71] or than Chicago scholars with their high-minded welfare economic utilitarianism.

Schumpeterian creative destruction is endorsed by Austrians and most members of the Bloomington and Chicago Schools as well. Bloomington and Chicago scholars believe in letting individuals off the leash of collective control because this will have good consequences for individuals.[72] Such consequentialist endorsements of liberal orders must, however, be distinguished from ideal right-based Austrian conceptions. Austrians who believe in ideal knowledge of rights of self-ownership and self-determination accept good consequences of market competition. Yet they do not use them as a justification for endorsing liberty. Institutions are judged to be good to the extent that they do not violate the rights that are allegedly known to exist according to ideal theory. Therefore, a Rothbardian libertarian of the Austrian type should be in favor of the free contract society even if the good consequences of liberty would not regularly emerge. A Hayekian libertarian evolutionist would follow a consequentialist line of argument. According to the latter view we have good consequentialist reasons to accept the libertarian institutions of the "great society."

In a constitutional political economy approach as that of James Buchanan characterizations of appropriate constitutional institutions of governance may even be regarded as technologies that name the means to deliberately pursue the aim of bringing about the consequences. The Ostroms are close to the Buchanan view in some respects. Yet, for them the creation of institutional rights and of institutions of governance is a contingent historical matter. They acknowledge that deliberate constitutional processes can and should play a role. To support these processes, they engage in evidence-based research *to the extent possible*. In cases in which neither experiments are possible nor sufficient actuarial or statistical evidence is available – that is in most politically relevant cases – they still favor to rely on a posteriori evidence as available from historical experience and cases.[73] Otherwise a good Bloomington citizen should follow for once, Bentham (1843) who criticized what he thought to be "anarchical fallacies":

> In proportion to the want of happiness resulting from the want of rights, a reason exists for wishing that there were such things as rights. But reasons for wishing there were such things as rights, are not rights; – a reason for wishing that a certain right were established, is not that right – want is not supply – hunger is not bread.

Austrians seem to like a priori judgments in general and concerning rights in particular due to their preference for non-interventionist (state) policies and institutions. A priori rights here seem to support their political preferences. An a priori standard preceding all empirical forms of social organization seems to be a nice shortcut that allows to raise a claim to knowing what

is right and wrong without having to look at the conventions that seem to define it in the real world. Yet, if real rights – as facts of the world – cannot be assumed to exist simply because we desire them to exist or claim to know that they ideally *should* exist things become inconveniently complicated. If real rights need to be brought into existence by some institutional process, the argument from a priori standards of rights becomes rather precarious. Here the work of the Ostroms, in particular demonstrates that there may non-state sponsored ways of creating rights and conventional normative standards that can be used in criticism of statist conceptions of society as a whole.[74]

Making a typically Austrian move in conclusion by again drawing attention to the fact that theories about the world are a causal factor in it by influencing real minds and their real behavior, it seems safe to say that the presence of the theories of the Bloomington School is in all likelihood a causal force that operates toward making our world better. Respecting the facts and working toward evidence-based solutions of practical problems can contribute to reducing the two greatest political vices of humankind: credulity or blind faith on one hand and enthusiasm or blind engagement on the other.[75] Despite their differences almost all economic theorists from the ABC triangle seem to believe that institutions empowering individuals to make their own decisions in competitive ways will support the control of the political evils of blind faith in and blind engagement for the "good" collective causes. According to the historical experience of the West and commonsense criteria of human flourishing, it seems plausible that such liberal thinking is on the whole itself a beneficial force. In any event, as Buchanan was fond to say, it is simply "better in the West" and we might want to acknowledge this in and support it by normative theories like the political theory of a compound republic.

NOTES

1. Following the example of Aligica and Boettke (2009) and Aligica (2013), I will be very selective and restrict my attention mostly to the work of Vincent Ostrom and Elinor Ostrom as representatives of the Bloomington School, neglecting such obvious usual suspects like Barbara Allen, Michael McGinnis, or Filippo Sabetti with no better excuse than constraints of space. These constraints and the desire to improve readability have also induced me to rely somewhat excessively on footnotes and references to support, illustrate, and hedge my claims.
2. For example, McGinnis (2005) distances Bloomington from Austria as well.
3. Mises' *Human Action* (1949/1998, pp. 17–18).
4. Alluding to the clever but ultimately, as I believe, mistaken paper of Gul and Pesendorfer (2008).

5. It is striking that both Mises (1949/1998, pp. 17–18) and Selten (1999, 303 ff.) use the same term "methodological dualism." Systematically, I will discuss some relations in Section 3 biographically the following remark may be of interest: Fritz Neumark who in his exile in Turkey during Nazi times was together with Richard von Mises, and, in particular, Heinz Sauermann who certainly knew the works of von Mises since he received his doctoral degree from Vienna university in 1927 – where he also had met Oskar Morgenstern – were professors at the economics department of Frankfurt's JWG University. They certainly must have spoken to Reinhard Selten about these issues (who published his first ever economics paper with Sauermann and became the co-founder of German experimental economics jointly with him). Since Reinhard Selten has recently died, I could not ask him personally, yet it is one of the many personal spin offs of this chapter that I shall make some inquiries with older colleagues of Selten on the matter.

6. Elinor Ostrom and I both participated for an extended period of time in the 1-year long 1987/1988 "game theory in the behavioral sciences" project at the ZiF (Center of Interdisciplinary Research) in Bielefeld; see on the results of the project the four volumes on "Game Equilibrium Models" I–IV, Selten (1991). She took to empirical issues while I got stuck with foundational ones. There is no doubt what was more successful.

7. Foss (2000) makes useful related points.

8. In the sense of Binmore (1987, 1988).

9. In Carnap's (1956), appendix, sense of explicating a pre-theoretical concept through substitution by a more precise, similar, simple, and fruitful concept. As Hart's (1961) explication of "The Concept of Law," Harsanyi's and Selten's (1988) efforts to explicate the concept of rationality in interactive decision-making became of book length.

10. As methodological dualists, both Mises and Selten strictly separate ideal theories of the logic of teleological choice making from empirical theories of real-world behavior. Yet, Selten does so within economics while Mises draws the line between economics and *all* testable empirical (in particular psychological) theories. Mises shares the neo-classical economists' aspiration to form general explanations but rejects on a priori grounds that his logic of action can be tested – Chicago style or other. For him the actor herself can predict her own behavior only to the extent that she is not "doing" it, that is, she is not acting. If we intend to understand interaction in terms of action rather than behavior, then Mises prima facie plausibly suggests, a theory from the several internal points of view of individuals who all conceive of themselves as doers and not predictors is necessarily non-predictive (as long as all rely only on the actor's perspective). Selten partly concurs. Against Mises he believes in founding empirical economics on predictive (cognitive) psychology and with Mises in non-empirically spelling out what rational action would ideally mean from the several perspectives of those who make rather than predict choices.

11. Henceforth, I will frequently use "(A)," "(B)," "(C)" to indicate that something is typical for the respective school whose name starts with that letter.

12. Before going on it may be of some interest to reflect briefly on where James M. Buchanan as another capital B should be located on the intellectual map. Despite his Chicago PhD in economics, the methodological views of Mr. B – as he was called by his nonacademic friends in rural Blacksburg – were closer to those of the Austrian than to those of the Chicago School. Like the Ostrom's he was trying to accommodate empirical research and a normative conception of rational economic choice.

Yet, the "Buchanan B" would not be coincident with the "Bloomington B." For, though a personal friend of the Ostroms and well acquainted with their work, he did not share Elinor Ostrom's empiricist view of economics as a behavioral social science. Buchanan's (1964) programmatic discussion of "what should economists do?" and his endorsement of pure game theory not as one but as the most important development of economics in the 20th century show that – though not an Austrian economist himself – he was leaning toward a rather Austrian interpretation of game theory along the lines initiated by Morgenstern and explored in particular by Harsanyi and Selten; see for background information, Leonard (2012), Buchanan (2001), and Buchanan, Güth, Kliemt, Schwödiauer, and Selten (2001).

13. The leading German philosopher of economics Hans Albert aptly classified modeling efforts that do not claim to be realistic yet empirically testable and relevant as "Model Platonism," see Hans Albert, Arnold, Maier-Rigaud (1962/2012).

14. Critical realists in the sense of Lewis (2010) whose efforts to preserve what he regards as the core of Austrian economics indeed move A toward B.

15. The tendency of interpreting axiom systems in Euclidean terms as relating to the world is common to anti-mathematical Austrian and many mathematical economists alike. It is independent of formalization though hardly compatible with the "formalism" associated with, say, Hilbert or the Bourbaki circle, see Section 2.2.

16. Even though for Rothbardian anarchists constitutionalism is merely an ethical second best – Austrians (A), Elinor Ostrom and Vincent Ostrom (B), Milton Friedman (C) – or for, that matter, James Buchanan as an (AB) – endorse pluralism and are committed to the priority of liberty under rule of law in a federal state order; see on the important role of pluralism in the thought of the Ostroms the apt remarks in Aligica (2013, in particular chap. 1).

17. Since scholars like the Ostroms certainly hoped that their intellectual presence would be felt beyond their own death, I shall try to avoid past tense whenever suitable, henceforth. This indicates that at least as far as I am concerned, the Ostroms accomplished what they hoped for.

18. It may be worth recalling that scientia and philosophia except for their Latin and Greek etymology were regarded as synonyms well into modern times; for example, Hume (1739/1978) would speak of a "philosophical" approach in ways that we would use for the anti-speculative approach of modern empirical science and advertise his treatise as "an attempt to introduce the experimental method of reasoning into moral subjects."

19. One might think of economics as rhetorics as suggested in McCloskey (1983). Yet, much of the work of the Bloomington School has a strong case study, respectively, analytical narrative ring Bates, Greif, Levi, Rosenthal, and Weingast (2000) to it as the studies concerning "governing the commons" Ostrom (1990) or "administrative behavior" Ostrom and Allen (1973/2007) show.

20. Even today EBM outside medicine, for instance as propagated in Rousseau, Adams and Barends (2012) for management, is weak. Political prediction is even more problematic as Tetlock (2009) and also the more optimistic Tetlock and Gardener (2015) show. Both observations seem to support some of the Austrian skepticism concerning the predictive value of theories once we apply them to a political (economy) context.

21. For an exemplary interpretation of axioms as characterizing the conditions under which certain forms of formal representation of choice problems become valid, see Gilboa and Schmeidler (2010).

22. At least not in the ordinary sense, even though there have been papers like Stephen Körner's (1965) "an empiricist's justification of mathematics," too.

23. Crudely put, the "if" in the "if–then" conditional must be *approximately* fulfilled in a test, as opposed to Friedman's (1953) Chicago view. This raises complicated methodological issues that cannot be addressed here; a way how one can deal with them in principle has been originally developed in Albert (2013) and is illustrated in dealing with "infinitary assumptions" in Albert and Kliemt (2016).

24. Denying the axiom of action in an act may seem pragmatically incoherent, yet, since there are possible worlds in which a denial can be uttered, it trivially does not amount to a "worldly" self-contradiction.

25. Obviously, the criterion for classifying a theory as an XY theory may be a specific axiom a. Theories that are contradicting a are not XY anymore and may form a new paradigm. A critical rationalist interpretation of the Lakatosian account of the related issue of the roles of "hard core and protective belt" in theory development is provided by Musgrave (1978). Musgrave's approach could be used as well to shed new light on Dolan's (1976a) interpretation of Austrian economics in a Kuhnian framework. In any event, the view that the choice of paradigms is an a priori rather than a posteriori empirical matter is not as compelling as seems prima facie.

26. Barry Smith avoids Kantian epistemic liabilities by assuming that there can be refutable (non-apodictic) a priori knowledge of ontological structures presupposed in theories. The subtle problems concerning the relationship between ontology and epistemology as arise here are beyond the present discussion. Suffices it to note that such views are compatible with fallibilism and a Bloomington account of empirical science; see on relations to Popperian themes Champione (2011), and on the Aristotelean side of this Smith (1990, 2010, 2011). See for additional background some of the essays in Grassl and Smith (2010) and Leeson and Boettke (2006).

27. That is, they are not "formal" in the sense of merely providing an "implicit definition" as characterized, for instance, in the entry with the same name in Bunnin and Yu (2004). Formal theories are not necessarily formalized. To see intuitively what it means to make merely formal rather than substantive claims, think of Peano's axioms which characterize a progression in mathematics. They are fulfilled by *any* sets of objects and relations between them that fulfill the axioms. "1" is a natural number, the successor of a natural number is a natural number, and so on. The axioms are, however, also fulfilled by the picture of a man holding a box on which there is a picture of a man holding that box, …, or think of yourself standing between two mirrors; your picture in the mirror can be mapped on 1, the picture of that picture as reflected from the rear mirror as 2, the mirror of the mirror image of the mirror imagine as 3, …. All these sets of sets and relations between sets fulfill all the axioms. A theory is formal if it does not use any information other than what is explicitly specified in the axioms. In this sense, the theoretical structure of the Peano axioms holds of numbers, boxes, mirrors, etc., that fulfill the axioms regardless of what else they are; see the Introductory crystal clear chapter in Kleene (1952).

28. "Cogitans sum" rather than "cogito ergo sum." Lewis (2010), rightly traces Mises' quest for certainty through Husserl to Descartes. Referring to Hargreaves-Heap (1989), Lewis (2010) adds some criticism of apodictic a priori claims based on private language arguments. Lewis' critical realism allows for reversible a priori knowledge or what may be called "relatively absolute absolutes" in the sense of Buchanan (1999) in ways that can also accommodate the Bloomington perspective within a basically Austrian framework.

29. For a related thorough going analysis of such Kantian concepts in a possible world cum game form context see Braham and van Hees (2015).

30. Debreu (1959) is an outstanding example, others can be found in the early collection of Koopmans (1951), which was axiomatic as well, yet closer to practical applications in operations research.

31. As an aside it may be of some interest to mention that in a speech in celebration of an honorary doctoral degree that was awarded to Reinhard Selten in Göttingen, Elinor Ostrom, then already a Nobel Laureate herself, "confessed" to the joint amusement of Selten and the audience, that she had committed the mortal sin of abandoning Selten's philosophical project of explicating ideal rationality in interactive decision making already when participating in the Bielefeld "game theory in the behavioral sciences project" in 1987/1988. Elinor Ostrom was an empirical social scientist unwilling to occupy herself with idealizations that were not approximations of something real but subject exclusively to formal analyses and to be judged by a priori criteria only. This separated her and, as it seems, Morgenstern – see Leonard (2010) in particular chap. 8 – from both Austrian and Selten type dualists.

32. An account of animal behavior like Kagel (1995) is compatible with this view. It may also be worthwhile to note that the insights economists are most proud of are practically always those that are most independent of the specific model of individual behavior – for example, Alchian (1950), Smith (1962) – while emphasizing at the same time that they build their theories on "homo (o)economicus."

33. Relating this to the methodological dualisms of Mises and Selten: For Mises, there cannot be causal explanations of the "content" of mental states. Since the content of what people think has an influence on the world through their actions this implies for him that (natural) science explanations of intentional action – which Mises identifies with causal explanations – remain fundamentally incomplete and in this sense impossible. A fortiori empirical psychological theories of economic behavior are impossible. Selten believes that economics as an empirical science can and has to be built on psychological theories of human boundedly rational behavior, which he, as one of the founders of modern experimental economics, explored in the laboratory as well as – with his cognitive psychology hat on – in questionnaire studies. It should be noted that both the Mises and the Selten positions seem compatible with the view that two mental states can have different "content" only if something in the physical world is different.

34. Elinor Ostrom accepts the role of experimental and cognitive psychology studies of behavior but tends to reject a theory of thinking about rationality and mental contents that is separated from empirical human practice entirely as a futile endeavor. The latter seems meaningful to both Mises and Selten. In this, their methodological dualisms coincide. They have, however, different preferences concerning the use of mathematics in searching for a reflective equilibrium on how human thinking about human thinking unfolds.

35. Technology as used here is a set of statements based on predictions. It is derived from a theory that implies recommendations given the aims, ends, or values of the actors. Concerning the concept of a technology see Albert (1985). Mises (1949/1998, p. 37) rightly emphasizes that even magical prescriptions form a technology.

36. See Section 3.4. for details.

37. In the laboratory all future objective causal consequences can be eliminated. They cannot be used in explanations in terms of extrinsic motivations. The seminal

ultimatum game experiment in Güth, Schmittberger, & Schwarze (1982) was meant to show that some intrinsic motivation (presumably supported by a retributive emotion) internal to the actor must be assumed to be operative; see on the career of the ultimatum game Güth and Kocher (2014). The ultimatum game experiment was also a first altruistic punishment experiment (Fehr & Gächter, 2002). Güth and Kliemt (1997) put in particular Selten's (1965) and Schelling's (1960/1977) views on the relation between commitment (intrinsic motivation) and equilibrium into the perspective of some classics of philosophy.

38. Ostrom (2010), second paragraph. Elinor Ostrom's authoritative account of IAD can be found in Ostrom (2005). Ostrom and Walker (2003) contains instructive reflections of the two editors on the status of experimental work.

39. Itzhak Gilboa a leading formal decision theorist characterizes rational actors by Reinhold Niebuhr's serenity prayer: "God, give us grace to accept with serenity the things that cannot be changed, courage to change the things that should be changed, and the wisdom to distinguish the one from the other" (Gilboa, 2009, p. 12). This is very close to both praxeology's and Selten's rationality conceptions in its focus on future directedness and causal intervention rather than consistency.

40. I shall discuss the topic only in a full rationality framework based on common knowledge. Güth and Kliemt (2004) illustrate in a rather non-technical way that many of the features of theory absorption in the full-rationality paradigm also arise in a bounded rationality context while theory absorption is addressed in a full rationality context in Morgenstern and Schwödiauer (1976), Dacey (1976), and Schotter (1992).

41. A Cournot–Nash equilibrium is present only if the interaction "generates messages which do not cause agents to change the theories which they hold or the policies which they pursue" (Hahn, 1973, p. 59).

42. To the extent that they are able to think through problems of interactive decision making, higher levels of knowledge are possible ad infinitum in principle.

43. The focus on causal effects also implies that a strategy can be chosen merely as a plan but not be enacted in a single move. That the causal influence of making a move can be exerted only when the concrete occasion to move arises in a play of a game is a fundamental insight emphasized in particular in Schelling (1960/1977) and more formally spelled out the first time by Selten (1965). It led to a rich literature on commitment and trust; a prime Bloomington example of this being Ostrom and Walker (2003).

44. A cell could be chosen in a single act only by a third party who could lead row and column as puppets on strings. The latter strange framing early on attacked by Buchanan (appeals to none of the three schools presently discussed yet implicitly shows up in conceptualizations of individual rights in social choice theory).

45. No wonder that Reinhard Selten believed that a satisfactory a priori theory of fully rational behavior in a world of fully rational beings would require the solution of the "equilibrium selection" problem solely on rational grounds. I reluctantly tend to concede that Harsanyi's and Selten's (1988) impressive theoretical efforts to solve the selection problems are doomed to fail in principle; see for a simple and transparent presentation of some of the crucial objections Sugden (1991).

46. Nash in whose honor the equilibrium concept normally is referred to as "Nash equilibrium" contributed the existence proof based on a generalization of Brouwer's fixed point theorem. The fundamental idea of justifying it in terms of theory

absorption went mostly unnoticed but must have been understood by von Neumann and Morgenstern who apparently at the time of conceiving their seminal theory simply did not care to spell this out explicitly; see for historical background most instructively also Leonard (2010).

47. Selten's work concerning evolutionarily stable strategies is, of course, related to real-world processes and equilibria that depend on an interpretation of u in terms of objective success rather than reflective equilibria (akin to the Goodman-Rawls kind but different as well).

48. That the myths we create and tell at the intellectual campfire are counter-factual in content does not prevent them from *causally* affecting us. What the rational choice and economics tribe think about another world can affect its and our worldly existence in the same way myths about another world have influenced our ancestors' and still influence our real behavior and real social organization.

49. Contrary to the Austrian view of praxeology as embodied in real human action what Selten's ideal theory describes is neither imposed on our life world nor reflective of it.

50. Boettke (1997) emphasizes that the Austrian perspective was originally part of the theoretical orientation of the neo-classical mainstream. Robbins (1935) endorses the Austrian means to ends conception. Hayek became a Nobel Laureate and so did Selten whose views are, if in a different way, as heterodox as those of von Mises.

51. As I will argue next the axiomatization of preference representations that von Neumann and Morgenstern suggested as summing up all *reasons* for preferring and choice making along with risk attitudes that were on the mind of the choice maker whose preferences were represented was quickly (mis-)interpreted in behaviorist terms by the neo-classical profession. That neo-behaviorism – as based in particular on Samuelson's (1938) revealed preference essay – is quite incompatible with behavioral economics proper is illustrated in Thaler's (2015). In the present context, I merely focus on how a concept of preferences as mental attitudes was – mostly without noticing it – re-interpreted in behavioral terms of making choices from choice sets.

52. Representing it, that is, by the natural order of real numbers such that expected values may be formed without distorting the representation of the preferences among lotteries of alternatives.

53. See for an excellent account of preference conceptions Hausman (2012). Hausman makes it impressively clear that according to the standard economic approach all considerations must enter through influencing preferences. Constraints are not imposed on preferences but considered in forming them. After all things have been considered they are then represented by u.

54. Hernstein and Milnor (1953) is a particularly clear "laundered" axiomatization of the original concept. The assumption of an "objective" probability distribution was removed by Savage (1954/1972) in ways that should be welcomed by Austrian subjectivists. That rational choice modelling went astray by neglecting Savage's warnings about the "small world assumption" has been pointed out in particular by Binmore (2009). Austrians might generally want to ask here whether the Bayesian way of modelling expectations concerning other human individuals *as if* concerning risk rather than (Knightian) uncertainty or (Ellsbergian) ambiguity is adequate if the unpredictability of teleological choice making is assumed. The assumption that it cannot be predicted as a natural process might suggest otherwise; see for background and references Gilboa (2009).

55. Working with managers of water resources in California or riding with the cops on a police car in a metropolitan area provides them with the institutional detail that is in their framework necessary to pass judgment on theoretical proposals; examples can be found in Cole and McGinnis (2014–2017).

56. See, for example, Poteete, Janssen, and Ostrom (2010) and Vollan and Ostrom (2010).

57. Adapting Hume (1739/1978, Book III, Part II, Section VI, opening lines) these are institutions "that guarantee the stability of property, its transference by consent and the execution of contracts." Practically identical see for the international level book III, Sect. XI ("the stability of possession, its transference by consent, and the performance of promises"). The Ostroms do *not* assume that property institutions must be state enforced quite to the contrary their work shows that non-state-sponsored institutions that fulfill Hume's criteria do work and in a world of states at least complementary to state-sponsored institutions.

58. Case-based decision theory again can provide an axiomatic structure to represent abstract requirements of minimal rationality – as consistency – in such cases, see Gilboa Schmeidler (2010).

59. See in particular Hayek (1973–1979). Yet, of course, Hayek also makes rather constructivist suggestions like that of introducing a so-called third chamber into bi-cameral systems. He was closer to B than to A.

60. See for a discussion of related issues of ideal theory vs. feasibility concerns Brennan and Pettit (2005).

61. Vincent Ostrom is not supporting to act according to the maxim "what worked there will work here!"; see Cartwright and Hardie (2012) for criticism. Yet for him it is a good working hypothesis that institutions that worked under some circumstances might work with situational adjustments under other circumstances.

62. As far as the typical Bloomington design principle of providing protected spheres for self-organizational processes is concerned, it is a rather Hayekian though not a foundational spontaneous order approach.

63. Of course, Selten's empirical theory part falls fully in the Bloomington camp. Even if the complete separation of ideal from real theory in his methodological dualism is not in line with the down to earth instincts in particular of Elinor Ostrom the two concur in their emphasis on empirical research.

64. The Ostroms could easily accept to formulate axioms that represent an empirically grounded theory after it has been tested and corroborated. But they would resist the temptation to use the axioms and their a priori plausibility as a substitute for empirical research.

65. One has to be careful here, though, since a lot hinges on how strongly in Hobbes' (1651/1968) model of opportunism as striving for power as a potential to reach a future "apparent good" the subjective side of "apparent" is made; see Leviathan § 10 first sentences.

66. The expanding circles metaphor in Singer (2011) is quite inversely used to refer to intrinsically motivating other regarding rather than to the extrinsically motivating self-regarding preferences invoked here.

67. The British moralists use the formula of "government being based on opinion" to express their skepticism about the expanding circles of threats model. Surprisingly even Hobbes in his later work Behemoth said the same; see Hobbes (1682/1990, p. 16). It seems that he already understood that the so-called – by Parsons (1968) – problem

of social order had no fully "Hobbesian" solution. In a way, the final word has been spoken by Herbert Hart in his seminal "the concept of law" which contains a thorough criticism of the economic model of case-by-case opportunistic decision making as explaining the regularities that we find in the real world. Without intrinsically motivated rule-following behavior the regularities of our social world could not be adequately explained. The human mind must be active in a way that cannot be reduced to predicting regularities if social regularity is to be explained adequately; see on the empirical side of intrinsically motivated rule following Kimbrough and Vostroknutov (2016).

68. This view was familiar among the canonists already who stated that the pope as highest authority of the church cannot tie his own hands – there is no sword behind the commitment and therefore it is "cheap talk." Bodin (1992) and others followed later and so did Hobbes. The conception of the rational actor is in fact that of the sovereign, projected on individuals in their ordinary capacities. Suber (1990) is a rather comprehensive analysis of some of the logic puzzles related to "highest authority."

69. See Mackie (1982) on the intimate relationship between morality and the retributive emotions.

70. Brennan and Kliemt (2017), Brennan and Pettit (2002), and Kliemt (1986).

71. For a conceptual exploration of whether or not there can be a rights-based moral theory, see Mackie (1978).

72. Even if this observation of the good consequences of a free order is not used as a justification for individual institutional rights (as in what Hayek calls his indirect utilitarianism sometimes) it is as such accepted. To entitle individuals to make their own choices will have directly negative externalities of destructing short-term value but indirectly will create more long-term value than is destroyed in the process. For popular empirical science support see for instance Norberg (2017) and Seabright (2010).

73. Vincent Ostrom' public administration work falls in this category and so does "governing the commons."

74. Jasay (2008, 2014) is an anti-statist view in the Bloomington rather than the Rothbardian or Misean spirit.

75. The wisest of all philosophers, David Hume (1985), would speak of superstition and enthusiasm. Yet this terminology is not fully intelligible anymore to modern readers, ironically including those from the "Bible Belt."

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