Outgrowing Methodological Individualism: Emergence, spontaneous orders, and civil society

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It doesn't matter if a cat is black or white, so long as it catches mice.

— Deng Xiaoping

Abstract: Methodological individualism provides important insights into spontaneous orders abstracted from their environments, but cannot probe the depth of their impact upon individuals whose actions generate the system, comprehend learning across generations, or the mutual impact of different spontaneous orders. Systems theory suffers no such limitations. This paper integrates Paul Lewis's exploration of emergent qualities in complex orders with the author's exploration of interactions between multiple such orders. Such an approach enriches our understanding of social complexity by demonstrating how causality flows in both directions, from individuals to society and from society and back. There is no starting point. Secondly, it provides a foundation for understanding civil society as a higher order adaptive system than are spontaneous orders.

A scientific methodology is only as useful as the light it sheds on phenomena that interest us. Methodologies are tools for studying reality, and like any tool, incorporate an ontology, assumptions about the reality they are supposed to investigate. Based on these assumptions, scientific methodologies select what matters most in understanding something from the enormous number of phenomena in the world. In doing so, each methodology necessarily simplifies its field of study, arguing doing so enables us to focus on a question without being overwhelmed with extraneous details. Simplifications are unavoidable, and even the most successful simplifications risk leaving out something important, or making misleading assumptions when employed to study new phenomena. Such is the case with methodological individualism.

Methodological individualism has been a successful tool in important fields within the social sciences, especially economics and, in a different way, Weberian sociology. Conceptually, methodological individualism is simple: all social phenomena, includig the unintended, can ultimately be explained by individual action, *without remainder* (for example, Vanberg 1986, p. 80; Caldwell 2004, p. 413; Oliverio 2016, p. 38; 2015, p. 38; Rothbard 1962, p. 2).

Methodological individualism has enabled economists to trace out the logic of independent decisions shaped by a

framework of enabling rules to collectively determine prices in the market. Individuals are always the ultimate initiators of these phenomena.

The purest version of methodological individualism might be "Crusoe economics," which initially considers an isolated man face-to-face with nature. His actions are all means to his ultimate ends, deriving their value from their contribution to achieving them. Many key economic concepts such as time preference and capital are introduced by analyzing Crusoe's choices (Rothbard 1962, I, chaps.1 and 2.). When "Friday" arrives, this introduction of interpersonal relationships supposedly supplies "the indispensable groundwork for the entire structure of economics" (Rothbard 2007).

Fundamental to this conception was "man's" *isolation* from the world in which he found himself, and about which he needed to learn in order to get what he wanted from it. Crusoe economics was atomistic, linear, and reductionist, *assuming* a cultured being with wants, and proceeding from there. More sophisticated approaches, such as employed by Mancur Olson (1965), William Niskanen (1971), James Buchanan, and Gordon Tullock (1999), presented increasingly complex images of human beings, with less isolation from their context.

What is called "behavioral economics" is also largely methodologically individualist. Its insights' power is rooted in analysis of individual choices that consistently do not meet the expectations predicted by rational choice models (Lewis 2017). While behavioral economics focuses on "anomalies" the neoclassical system could not explain, its approach is devoted primarily to individual fixes, retaining many neoclassical axioms, such as methodological individualism (Snower 2020).

Perhaps the most sophisticated form of methodological individualism is called "complex methodological individualism," which will be discussed later (Di Iorio 2016). But all argue social theory ultimately must be *rooted* in individual choice.

HAYEK'S BIOLOGICAL TURN

During the first decades of his career, F. A. Hayek had argued the social sciences differed from the natural sciences because, unlike within the natural sciences, we had access to human minds, and the implications of their subjectivity for explaining action. Among human beings, knowledge was fragmentary and contextual, distributed unevenly within a society, and sometimes in error, yet society was not chaotic. No equivalent problem confronted the study of physics.

Consequently, different methods were needed to pursue the social sciences as distinct from the natural sciences. This distinction argued methodological individualism was a tool essential for the social sciences, but not needed in the natural sciences (1952).

In time, Hayek's research went beyond traditional economic questions, such as the market vs. central planning debate. Hayek's effort to understand the social institutions needed to support a market economy changed his research focus. Increasingly, he emphasized the cultural and legal environment facilitating markets, rather than focusing on issues within economics more narrowly defined. As Bruce Caldwell puts it, along the way Hayek discovered, "orders in many sorts of unrelated phenomena in both the natural world and in the social relations and institutions that comprise a part of that world, orders that emerge due to rule following on the part of the relevant constituent elements" (Caldwell 2014, p. 2).

A sign of the new territory Hayek had entered was his emphasizing the similarities between Darwinian and social evolutionary processes rather than the distinction between social and natural science. Caldwell observed "when Hayek illustrates his claims about sciences that study complex phenomena, he chooses not economics, but the *theory of evolution* as his exemplar" (Caldwell 2004, p. 30). By the 1950s Hayek had begun incorporating evolutionary themes in his work, and made them central to it in the 1960 *The Constitution of Liberty*.

This shift was accompanied by others reflecting the same reorientation. Instead of emphasizing the distinction between the natural and social sciences, Hayek increasingly distinguished between what he called the relatively "simple" and "complex" sciences. It was in this new context that he introduced the term "spon-

taneous order" in the *Constitution of Liberty* (1960, p. 160). The former distinction between the social sciences and sciences such as physics still existed, but was no longer important for the research he was now doing. Methodological individualism played no role in other complex sciences, such as evolutionary theory. Consequently, it could not explain processes they shared in common.

A similar shift took place in how Hayek treated the thinkers of the Scottish Enlightenment. They continued to be important, but with a difference. In "Individualism True and False" Hayek had described David Hume and Adam Smith, as well as John Locke, as representative of "true" individualism. (Hayek 1948, p. 4) In his later work, what was important about Hume and Smith's thought was that it was evolutionary, not that it was individualist (1967b, pp. 111, 119). Significantly, Locke, an individualist, was never mentioned as part of the evolutionary tradition (1973, p. 52). Hayek continued to identify him as a 'classical liberal," but Locke's reasoning shared more with the constructivist than evolutionary tradition (1973, p. 118).

Very un-Lockean insights developed during the Scottish Enlightenment led to the theory of evolution, with Darwin's grandfather, Erasmus Darwin, providing one connection to both (Hayek 1967b, p. 119; Richards 2017, pp. 74-5, 82-90). Hayek argued "it was from the [Scottish enlightenment's] theories of social evolution that Darwin and his contemporaries derived the suggestion for their theories" (1960, p. 59; 1967b, p. 119). In making this connection, Hayek ignored his earlier distinction between natural and social science, appropriating, in Paul Lewis's terms, "for economics the ideas developed by theoretical biologists like [Ludwig von] Bertalanffy" (Lewis 2016, p. 147).

Methodological individualism could explain patterns arising from individual actions, but now similar patterns were arising outside the social realm. Methodological individualism played no explanatory role in these other patterns, and so could not serve as a unifying framework. Another was needed.

SYSTEMS THEORY

Warren Weaver had distinguished between three kinds of phenomena studied by modern science. For most of its history scientists had focused on *two variable problems* amenable to investigation in terms of linear causality, such as Newtonian physics. Later, scientists began investigating what Weaver termed problems of *unorganized complexity*, amenable to statistical analysis. Now, Weaver argued, the sciences were increasingly concerned with problems of *organized* complexity where many interdependent variables mutually influenced one another, making both exact predictions and statistical certainties impossible (Weaver 1948; Caldwell 2014, pp. 14-15; Hammond 2003, p. 118). In the 1940s Ludwig von Bertlanaffy argued "general systems theory' was an all-inclusive scientific outlook free from the problems plaguing the dominant reductionist and statistical approaches (Bertlanaffy 1968).

Bertlanaffy argued Weaver's laws of organized complexity were "systems laws" that could shed light on multivariable interactions, organization, hierarchic order, differentiation, goal directed processes, and "negentropic" trends (where order increases, in contrast to entropy) (Bertalanffy 1971, p. 60). These principles provided a basis for unifying disciplines long treated as distinct, such as physics, biology, and sociology, within a common theoretical framework. Bertlanaffy built this argument around the core concepts of system, organization, emergence and hierarchy.

Joanna Macy explained while traditional science could understand causal relationships between two things, it "had difficulty applying unidirectional causal notions to situations involving more than two variables. . . . To map multivariable complexes in terms of linear relations involved piecemeal analysis, where the forces at play are reduced to sequences of interacting pairs. [This approach] cannot map the flow of the whole interactive complex" (Macy 1991, pp. 70-1).

A system's approach focused on wholes, not parts. Rejecting traditional reductionism, systems theory emphasized how relations between the system's parts shaped a whole from which new properties emerged that had not been present in its parts, and so could not be reduced to them. Consequently, for understanding systemic wholes, the principles structuring relationships between their parts were more important than the parts themselves.

This observation held from very simple systems, such as water, to vastly more complex ones. Water's mass is a simple addition of the mass of one oxygen and two hydrogen atoms, and so comprehensible within a reductionist framework. However, its wetness at room temperature cannot be deduced from these parts. At that temperature, both are gasses. It is water molecules' relations with one another that create wetness, and even more unusual qualities (Gallagher 2015).

Biological wholes resisted reductionist efforts even more strongly, resulting in a paradox. The Second Law of Thermodynamics states order always tended towards disorder. In this respect water was no different than oxygen and hydrogen. Left in isolation, a glass of hot water in a cold room reaches a temperature common to both.

Despite the Second Law, evolution brought forth increasingly complex life forms, immersed within increasingly complex ecologies, all far from equilibrium. Order increased. Only upon death did equilibrating tendencies triumph.

Bertalanffy argued the Second Law held only for closed systems. By incorporating energy from their environment, open systems can increase their internal order (Lewis 2016, p. 131; 2015, pp. 185, n. 14). Macy described this process as "anti-entropic," producing an "increase of order within the overall thermodynamic tendency towards randomness and disorganization" (Macy 1991, p. 93).

Such an ordered pattern could persist even if all its individual elements were replaced. The parts are secondary to the relationships between them. Comprehending such a system necessarily required understanding its environment, as well its internal characteristics (Hammond 2003, p. 105; Macy 1991, p. 72).

Individual organisms, biological communities, and social systems are all systems in this sense, sharing qualities of interdependence, self-regulation, adaptation to disruptions, and stable patterns. Bertlanaffy termed this kind of pattern a "spontaneous order" (Lewis 2016, pp. 131-2). What distinguished biological and social systems from organisms was how closely their parts were coupled, a distinction subsequent biological research has increasingly blurred (Margulis 1998, p. 64; Schmidt 2015; Sheldrake 2020, p. 88).

Bertlanaffy argued a system's parts are themselves systems, shaped in turn by *their* parts and interactions with *their* environment. In such systems, qualitatively new properties emerged that were not implied in the properties of their parts. Each system is made up of simpler systems as well as being part of another more inclusive and complex "higher order" system exhibiting new properties. It was systems, (not turtles,) "all the way down." Absolute wholes and parts *do not exist*.

The result was a bottom-up hierarchical model of distinct systems. Organisms are multi-levelled hierarchies of semi-autonomous 'sub-wholes,' themselves expressions of sub-wholes of a still lower order. Even the individual cells making up our bodies are composed of what were once separate organisms, now existing symbiotically, and unable to flourish outside this relationship (Margulis 1970). Systems emerged from the bottom up as systems lower in complexity entered into networks within which new qualities emerged in higher, more complex, systems.

Hayek found his friend Bertalanffy's work valuable (Lewis 2016). Hayek had already developed a theory of how neural integrations led to what he termed the "sensory order" (1952b, p. ix). Bertalanffy's concept of emergent order explained how these interconnected neurons that comprise the brain's physical order give rise to the emergent order of the mind at a higher level of reality. Hayek's study of the market order, and the larger cultural framework within which it existed led him to argue "*all* enduring structures above the level of the simplest atoms, and up to the brain and society … can be explained only in terms of, processes of selective evolution. . .. These changes in structure are brought about by their elements possessing such regularities of conduct , or such capacities to follow rules, that the result of their individual actions will be to restore the order of the whole if it is disturbed by external influences" (Hayek 1979, pp. 158-9; 1973, pp. 73, 362).

That *both* the emergence of mind and the market could be described in similar systemic terms illuminated the centrality of hierarchy for understanding systems. Hayek described more inclusive systems as "wholly different . . . [from any] regularity in the behavior of the elements" (quoted in Lewis and Lewin 2015, p. 7). Higher level systems could not be reduced to lower level systems.

Viewing the market this way emphasized different phenomena than did unpacking the logical implications of individual choice. Human agency did not disappear, but existed within a larger context that in turn shaped it. The larger pattern created by people's choices was derived from the principles governing the system, not from particular choices themselves. Decisions took place within networks of mutual influence, and it was these networks, not individual decisions, that created the patterns observed. In a system of this kind, *no matter what the choices*, *a common pattern emerged*.

As Hayek wrote. "What we single out as wholes, or where we will draw the 'partition boundary', will be determined by the consideration whether we can thus isolate recurrent patterns of coherent structures of a distinct kind . . . The coherent structures in which we are mainly interested are those in which a complex pattern has produced properties which [preserve] the structure showing it" (Hayek 1967c, p. 27). A system's boundaries could be described as the outer limits of coherent patterns maintaining themselves over time.

There was more to markets than their being the product of human action but not of human design. Choices were secondary to the framework of *rules* in which people acted. Similar kinds of patterns arose and persisted in other complex adaptive systems with different rules, such as biological evolution, where human action played no part at all. Market patterns arose no matter what people's motives and exchanges were so long as the rules were followed. From a systems theory perspective, methodological individualism was not rejected, but subordinated to a larger systemic framework within which it played a secondary role.

SOCIETY, CHOICE AND EMERGENCE

Methodological individualism assumes un-intended social structures are ultimately creations of human agency. Anthony Evans writes "If only individuals *choose*, then the way to understand cultural concepts such as 'society' is through an analysis of individual action" (Evans 2020, p. 3. my emphasis). Evans elaborates, institutional "Routines, habits and customs are our guideposts, but of our own making since we *consent* to adopting them" (Evans 2010, p. 9, my emphasis).

Robert Nadeau makes a similar point, "groups of people are selected for their rules because the economically successful individuals get *imitated* by others, and form dominating communities" (Nadeau 2016, p. 19, my emphasis). *In these descriptions causality flows one way.*

This happens, but not initially. Examining the broad Weberian methodological individualist traditions demonstrates why. Peter Berger and Thomas Luckmann's defense of methodological individualism open the door. They argue subordinating social structure to human agency is best grasped by considering *three* distinct elements in the creation and maintenance of society: "Society is a human product. Society is an objective reality. Man is a social product" (Berger and Luckmann 1966, p. 79).

People interact with one another, producing society, and networks of custom and belief continuously react back on their producers. By shaping their consciousness and actions in turn, an unending chain of reciprocal influences arises. Over time, forms of behavior and institutions originating in human agency come to be experienced by others as social 'facts,' existing independently of people's actions. These 'facts,' rooted in culture, and often held tacitly, are ultimately of individual origin, but accepted as simply true by subsequent individuals.

What people initially take for granted are intellectual maps, and maps are not the territory (Damasio 2012, p. 88). Personal engagement encounters the territory as previously mapped, and when the map misleads, people might revise it. Even so, these questions still arise within a more embracing context of unquestioned beliefs. Agency exists, but always within a larger taken-for-granted context.

Alfred Schütz, whose work strongly influenced Berger and Luckmann's analysis, and who considered himself a methodological individualist, wrote "By a series of common-sense constructs [human beings] have pre-selected and pre-interpreted this world which they experience as the reality of their daily lives. It is these thought objects of theirs which determine their behavior by motivating it" (Schütz 1972, pp. 98-9). Their socially mediated world is treated as part of their reality, unless they find cause to question it (Schütz 1970, pp. 87-8).

Berger and Luckmann's second element, our being social constructs, is easily understood if we consider how children incorporate cultural 'facts' as objectively true. These culturally rooted facts help constitute the mental maps they employ to make sense of their world. In Alva Noë's words, "Maturation is not so much a process of self-individuation and detachment as it is one of growing comfortably into one's environmental situation. We grow apart, but we attach to the world without. We integrate [rooting] ourselves in the practical environment" (Noë 2009, p. 51). In Hayek's terms, "Mind is as much a product of the social environment in which it has grown up and which it has not made as something that has in turn acted upon and altered these institutions' (Hayek 1973, p. 17).

Language structures our thought and how we view the world, and differences in languages shape our perceptions of what seems most real about the world. Compared to European languages, many Native American languages utilize relatively few nouns and many verbs. What English describes as objects, as nouns, are often understood in these Native American languages as processes, as verbs. This difference sheds light on why these cultures experience the world differently (Kimmerer 2013, pp. 48-59). As Kimmerer observes elsewhere, in these languages "There are words for states of being that have no equivalent in English" (Kimmerer 2017).

When Buckminster Fuller wrote *I Seem to be a Verb*, many Americans believed Fuller described a new way for them to think about themselves (Fuller 1970). (*I Seem to be a Noun* would not have been a catchy book title.) Fuller brought attention to something about human experience many Americans did not notice but, for other people, was an obvious feature of their lived reality. Fuller attracted so much attention perhaps because nouns and verbs are retrieved from differently distributed neural systems. Our perceptions are shaped both by our learning and our brains (Damasio and Tranel 1993).

In "The Primacy of the Abstract" Hayek argued our minds' ability to perceive particulars is rooted in a prior capacity to discover abstractions providing the framework within which we can make sense of these particulars. Our perception of our world depends on our mind's capacity to organize experiences into comprehensible patterns. Without this capacity we would be overwhelmed with sense data, with no clear way to make sense of it. As with culture in other beings, the *first* recognition of patterns precedes reasoned choice and is culturally embedded, as when learning a language. Only then do we have something to think about. We are not convinced by others that these patterns exist.

Anthony Evans' "consent" and Robert Nadeau's "imitation" *presuppose* this process. When we learn our first language we do not *attach* meanings, we *learn* meanings existing independently of us as individuals. For example, when I learn how to read, the role of imitation is small because the particulars of any book differ from the experiences that led to my learning to read. 'Consenting' and 'imitating' presuppose discovery. Learning *is* discovery.

Albertina Oliverio captures this insight when she writes "Societies are collectives bound together by shared frames of thought conveyed by the institutions. An institution is a memory, information which enables all to exercise their rationality as individuals. Knowledge is established collectively, used rationally by individuals, and then shattered by the complexity of social phenomena" (2016, p. 40).

The institution-as-memory can change over time. In Hayek's words, "[M]ind can exist only as part of another independently existing distinct structure or order, although that order persists and can develop only because millions of minds constantly absorb and modify parts of it" (1979, p. 157). Human minds exist because they were shaped by human societies.

As children mature, and amass their own experiences, they sometimes see contradictions between different "social truths" they have learned. Parts of their social reality become open to questioning, creating space for agency, but always within the context of a larger still taken-for-granted world. We are neither completely free nor completely determined.'

By recognizing society as an objective reality, Berger and Luckmann took an important step away from 'choosing,' 'consenting,' and 'imitating' as adequate explanations for culture. Even so, critics argued their argument ultimately broke down. Agency and society still remained separated. Paul Lewis explains "if social institutions consist of nothing more than people's current actions, there literally is nothing to struc-

ture and shape the current interactions through which shared meanings develop" (Lewis 2010a). This situation might be approximated if two aliens from different planets met and had to develop a relationship. But as generational transmissions of institutions demonstrate, this is not what happens among human beings. From birth to death we are immersed within a multigenerational context shaping the environment within which we exercise our agency and which we can sometimes modify.

Berger and Luckmann's key insight about society being objective while agency is real is preserved when society is viewed as an emergent system where each dimension is *always* influencing the other. Lewis describes emergence as (Lewis 2010a, p. 9):

> . . . the possibility that, when certain elements or parts stand in particular relations to one another, the whole that is formed has properties (including causal powers . . .) that are not possessed by its constituent elements taken in isolation. . .. Emergent properties are structural or relational in the sense that their existence depends not only on the presence of their ('lower-level') constituent parts but also on those parts being organized or arranged into a particular structure that involves them standing in specific relations to one another

A key phrase here is "including causal powers." Lewis elaborates "If the emergent properties possessed by a system include causal powers—understood as the capacity to make a difference to events in the world—then higher-level systems possess causal powers that are different from, and irreducible to, those of its parts" (Lewis 2020a, p. 6). *There is no ultimate cause.*

With respect to the market, the emergent whole of agents *plus* institutions such as rules of contract, tort, and property rights as well as tacit foundations to relationships, such as the assumption of truth telling, generate the market order, creating an unintended but predictable pattern. In Lewis's words, "rule-governed, relationally-defined social wholes that structure people's interactions are causally efficacious, explanatorily irreducible factors in their own right and as such a key concern for social theorists" (2010a, p. 12; 2015, p. 8). Consequently, human agency and social structure "are both preconditions for and a consequence of the other" (Lewis 2010a. p. 13).

Causation runs in both directions. In economics, Hayek's abstract rules, and Berger's description of how social typifications arise, merge, providing the stable background knowledge enabling people to plan their responses to price signals while being reasonably confident other people will do what is required to bring those plans to fruition (Lewis 2010a, p. 15). People's responses to price signals are shaped by shared knowledge of how the typical occupants of particular social roles act in certain circumstances. This knowledge can lead to profound changes in how people think and act.

A methodological individualist might reply rationality had to begin somewhere, but once emerging, it took on a life of its own. For example, Peter Boettke argues Hayek emphasized the co-evolution of reason and cultural traditions mainly "in the epoch when man was *first* emerging from his prehuman condition" (2019, p. 190, my emphasis). Rational individuality is an emergent product that laid the foundation for additional complex phenomena. Human agency ultimately triumphed as an *independent* force as a result of evolutionary processes, thereby making methodological individualist explanations possible.

Boettke is mistaken here. This process long preceded human beings, or even the genus *homo*, and continues to this day. Referring to the work of Michael Polanyi and others, Hayek emphasized the importance of "non-articulated rules in determining action [as] mental factors which govern all our acting and thinking without being known to us. . ." (1971, p. 313). These rules generate "dispositions" and any particular act will reflect the collective interactions of many of these abstract rules. The formation of new abstractions "seems *never* to be the outcome of a conscious process, not something of which the mind can deliberately aim, but always a discovery of something which *already* guides its operation" (1971, p. 320). Hayek's observation that "*mind and culture developed concurrently and not successively*" is well-grounded (1979, p. 156). As my example of how language's verb and noun structures shape the world we experience demonstrates, culture *remains* a decisive formative influence. Something as basic as whether something is a verb or a noun

is culturally shaped, and we learn to think within these different ways of perceiving. The development of a rational mind and culture *never cease*.

Alva Noë writes "Scientists have tended to think that to have a mind like ours, we must be able to think and calculate and deliberate as we do. In fact, to have a mind like ours, what is needed are habits like ours. Habits and skills . . . are triggered by environmental conditions and they vanish in the absence of the appropriate environmental setting" (Noë 2009, pp. 97, 125). Speaking a language is such a skill. The same holds for all learned skills and habits, and the first of them are not acquired by imitation but by discovery. Reason requires a context to develop, and rationality in a human sense remains linked with culture.

We can now look again at Hayek's shift from emphasizing the difference between social and natural science to distinguishing between simple and complex sciences.

CULTURE AND BIOLOGY

To be human requires having a culture, but *having a culture does not require being human*. Culture is linked to sociality, not to humanity, which emerged from pre-existing cultured social ancestors. Human life arose from pre-human cultural beings who were rational and could plan for the future. Many examples of rational action and planning ahead have been observed among chimpanzees and bonobos (De Waal 2013, pp. 204-5). Chimpanzees are rational in very human ways, building coalitions, rewarding allies, and building alliances with truly Machiavellian skill (De Waal 1982). Ambitious males even kiss babies to court the support of females! (De Waal 2016, p. 162). When a member of one chimpanzee culture enters another group with different cultural practices, it adopts them for itself (Hooper 2020, p. 17). Nor are chimpanzees simple calculators of self-interest (De Waal 2019, pp. 98-9, 114-20).

The circle of verified rational culturally-rooted action among birds and animals continues to enlarge (Safina 2020). A great many species cooperate together for mutual gain, and knowledge obtained by one is passed on to larger groups culturally. This knowledge includes the use of resources, making complex tools, and sharing (De Waal 2016, pp. 185-98). A strong sense of fairness exists in many animals, and for that sense to exist, a sense of who is or is not one's equal in some sense is required, along with a sense of appropriateness (Bekoff and Pierce, 2009). When disease disrupted their strongly hierarchical, aggressive, culture, baboon troops have demonstrated a new culture could emerge based on more 'fair' relationships. It has lasted for generations, perpetuated by the young born into it, and raising new generations to adapt it as well (Sapolsky 2017, pp. 648-52; Sapolsky and Share 2004).

In Bruce Caldwell's words, "To the extent that humans exhibit any rationality, it is probably better viewed as the *result* of certain institutional arrangements than as anything else. By starting with rational agents, standard economic analysis gets things exactly backwards" (Caldwell 2004, p. 286). Sociality, and its institutions, provide minds the rich environment within which to develop and become human.

Our "dispositions" also have a physical dimension. Repeated action in accordance with a rule or way of perceiving a context leads, as Lewis observes, "to the formation of new cognitive (neural) structures and therefore to people having new dispositions to conceptualize and respond to their circumstanced in certain ways . . . social rules can become physically embodied in people . . ." (Lewis 2012, p. 375; Damasio and Tranel 1993). This process begins in earliest childhood. (Eisler and Fry, pp. 78-89). Physical embodiment means "social rules, and the systems to which they give rise, possess the emergent causal power to shape human agency" (Lewis and Lewin 2015, p.7). The higher-level system develops emergent properties that, in turn, act causally on their component parts. *Cultures and cultural organisms co-evolve*. We exist on an evolutionary continuum that long preceded us. This process continues today.

Recent studies have focused on the profound differences between most human cultures and those increasingly identified as "WEIRD:" Western, Educated, Industrialized, Rich, and Democratic. On a great many psychological and social comparative studies, WEIRD people act significantly differently from the rest of the world (Henrich 2010; 2020).

In a series of extensive inter-cultural studies, distinctive patterns have emerged. There is significant evidence that engaging in impersonal market exchanges shifts behavior *away* from rational actor models (Henrich 2020, pp. 387-9). On balance, modern WEIRD people are more generous to strangers and treat them more fairly than would be expected from rational actor models. However, similar behavior by members of non-WEIRD cultures more closely resemble the 'rational actor' (Henrich 2020, pp. 210-19). People's impersonal trust in others is also significantly correlated with increased interorganizational competition (Henrich 2020, pp. 340-8). Wage labor changes how people experience time and exercise individual patience and foresight. (Henrich 2020, pp. 371-3) All these effects arose from human action but not human design, and in turn powerfully shaped human action- and even identity (Henrich 2020, pp. 383-4).

SPONTANEOUS ORDERS AND POLYCENTRISM

After WWII, Hayek, and his friend Michael Polanyi, increasingly employed the term "spontaneous order" to describe social systems where more information than anyone could ever grasp was effectively coordinated to better serve the purposes of those acting within their framework of rules. The general idea the term described had a long pedigree, but it was Hayek and Polanyi who ensured its widespread use. Polanyi apparently used the term before Hayek, adopting it in 1948 to replace his earlier "dynamic order" (Jacobs 1999, pp. 116-8). Hayek, for his part, apparently adopted the term after Bertlanaffy employed it in 1952, rooting it in general systems theory (Lewis 2016, pp. 131-2). But given their friendship, Hayek was possibly influenced by Polanyi and Polanyi was possibly influenced by its use by some Austrian economists (Bladel 2005). No matter who was 'first,' in William Butos and Thomas McQuade's words, "after Polanyi and Hayek it did not need discovering again" (Butos and McQuade 2107, p. 2)

Both men also employed the related term "polycentric" to describe patterned systems where no center shaped the system as a whole. Hayek got this term from Polanyi, and both used it to describe spontaneous orders (Polanyi 1951, pp. 170-84; Hayek 1960, p. 160). In the analysis to follow I will argue *all spontaneous orders are polycentric, but not all polycentric orders are spontaneous orders.*

In their writing, Hayek emphasized the market and Polanyi science (Polanyi 1969, pp. 49-72; Butos and McQuade 2017). Both also used additional examples to emphasize the concept's central importance, combining different kinds of systems by one criterion: that unplanned order arose that could not be traced to qualities in their parts, including natural phenomena like the growth of crystals and iron filings reacting to a magnet, with social phenomena such as science, common law, and the market. Polanyi included the arts, literature, and agriculture as well.

The connecting thread for all these examples was that ordered patterns emerged without the deliberate actions of anyone by a process of mutual adjustment. But beyond this, their differences were enormous. Once a pattern emerged, some "spontaneous orders" were essentially static, such as crystals and iron filings. Others were highly adaptive, such as science and the market. Like markets, some were dependent on the rules that generated them, others, like the arts, were vastly less so. Mutual adjustment could take place along a linear chain of influences, by system-wide feedback, or by both.

I think this concept's blurriness was because Polanyi and Hayek were writing when there were few terms suitable for describing complex ordered phenomena arising independently of intention. With the subsequent appearance of additional terms focusing on different dimensions of these phenomena, such as self-organization, complex adaptive orders, and autopoiesis, we are more fortunate. We can more easily make distinctions within this broad class.

In this paper I limit the term "spontaneous order" to autonomous emergent social orders structured by rules promoting mutual adjustment among people pursuing any plan of their choosing in keeping with those rules, aided by systemically generated feedback signals recognized by those participating within them. This definition focuses on what science, law, and the market share compared to most other complex adaptive systems. I would add democracy although it will play a small part in this paper because I am focusing here on Hayek and Polanyi's work, not my own (diZerega 2019a). These four have *standardized system wide* feed-

back signals. The arts, such as literature, do not. From this perspective, spontaneous orders are a subset of emergent complex adaptive phenomena, which are themselves subsets of emergent phenomena (diZerega 2013, p. 9).

Some emergent social phenomena exist at the boundary between spontaneous orders in this more focused sense and other complex adaptive systems. Language resembles spontaneous orders as I define them, but its systemic feedback is comprehensibility between two speakers, with no necessary impact on the system as a whole. Grammatical rules make emergent orders of language possible, but in language innovation, like innovation in customs, proceeds largely face-to-face rather than through systemic feedback. Today, "awesome" is often used very differently from when I was young, but no system-wide signals coordinated this shift. People adopted it one by one.

Within a spontaneous order, freedom involves respecting systemic procedural rules while individually choosing to pursue anything in harmony with them. David Hardwick and Leslie Marsh have emphasized the spontaneous orders of science and the market arise from *mutual adjustment* among *independent equals* using *systemically defined* feedback signals shaped by their constitutive rules as guides to their actions (Hardwick 2008; Hardwick and Marsh 2012). The same is true for the freedom of a common law judge.

In a spontaneous order community-specific rules apply to all equally. These rules are independent of particular people, and in that sense are impersonal. As judges and scientists demonstrate, "equality" refers solely to members of the community defined by adherence to these procedural rules. The views of people outside the community do not matter.

Within communities governed by these rules, systemic feedback minimizes the knowledge participants need to act effectively within their framework. Price signals provide the feedback in markets. In science, it is a claim's standing within the scientific community. In democracies, votes provide the feedback. Acceptance of precedents and occasional widespread acceptance of innovations do the same in common law. Lewis and Lewin describe these signals as "knowledge surrogates" (2015, p. 3). As surrogates, they require interpretation by participants, and interpretations vary.

The knowledge transmitted by this feedback is necessarily simpler, but more inclusive, than that possessed by individuals acting within them. This knowledge is systemically defined, such as prices in the market, and serves as signals for acquiring resources for acting within the system. Systemic feedback, such as profit and loss, provides a means by which systemically relevant knowledge is discovered and systemically irrelevant knowledge is discarded.

If people wish success in acquiring systemic resources, the system imposes its own values on them, and eliminates these resources if a person's own values get in the way of acquiring systemically defined ones. Systemic feedback strengthens a system's values in influencing human action by rewarding systemic success or failure. For example, if too much profit is sacrificed in seeking other values, a businessperson will soon be out of business. Within spontaneous orders this shaping of the context of action is what Bertlanaffy meant by a goal directed process (Bertlanaffy 1971, p. 60).

In the case of economics, a society of many independent people pursuing self-chosen projects within a framework of rules common to all, Peter Boettke and Vipin Veetil claimed that "the market as such has no teleology" (Boettke and Veetil 2016, p. 46). Fernando Toboso elaborates that from the perspective of what he calls "institutional methodological individualism," "no impersonal active entity with apparent aims, interests and driving forces of its own is included in the discourse as an explanatory variable, nor is any other impersonal systemic factor that possesses its own dynamics for which the responsibility may not, even indirectly, be attributed to any person" (Toboso 2001, p. 10).

For these claims to be correct, the rules must be neutral with respect to any value compatible with voluntary cooperation. They are not.

Systems in general have a kind of purposiveness. Joanna Macy writes that information does not flow through a system following a fixed pathway producing results directly, "Rather they are subject to the dynamics of the system's internal structure. Incoming messages . . . are sorted, sifted, evaluated, and recombined before they are transmitted to effectors and translated into action. The open system . . . actively trans-

forms" external causes (Macy 1991, p. 92). The result is the pattern, and the pattern reflects the values that lead to its structure.

A spontaneous order's procedural rules enable people motivated by different values and ends to profitably use the same rules. But to do so, the rules facilitating cooperation among strangers are *necessarily* simpler than the full field of values actually motivating people acting within the context of those rules. These rules' *systemic bias* shapes the kinds of cooperation most likely to succeed in the system's terms, and they will differ from system to system.

Consequently, pure market procedures provide a poor environment for pursuing scientific knowledge. At the same time, scientific procedures provide a poor framework within which to start and manage a business. Values inherent within the rules shaping these systems generate patterns independently of the intentions and values of those acting within them. *These values would be systemically enforced whether all, some, or none acting within a system personally shared them.* However, when a person's personal motives are in close harmony with a system's value bias, they will be advantaged compared to those whose personal motives are more different.

Spontaneous orders are often described as "self-organizing." and I once preferred using this term. (diZerega 2000) The word '*self*,' is illuminating. In these cases the 'self' emerges from the system's internal rules and the values they reinforce. A spontaneous order's 'self' is an emergent value arising from people acting in accordance with its organizational rules, and thereby producing a pattern able to shape its environment reflecting systemic values while maintaining itself far from equilibrium (Capra and Luisi 2014, p. 145). Compared to human beings, spontaneous orders are 'value-thin,' and their selves are one-dimensional. But they will be selves as contexts shaping agency by enforcing the primacy of systemic values.

A system's emergent pattern manifests over time, reflecting knowledge embedded in relationships shaped by rules independent of any particular relationship, and having an active causal influence on those relationships. To better grasp this point I will examine systemic values in science and the market.

The values pursued by those acting within a spontaneous order need not be those rewarded by the order itself. There is a distinction between the values reinforced by the rules and the values motivating individuals acting within them. Market economics is not the "science of choice," It is the science of choice within a particular set of systemic rules. Science, another spontaneous order, cannot be adequately understood with purely economic methods.

SYSTEMIC VALUES IN SCIENCE

The best scientists are dedicated to seeking Truth. In addition, many scientists agree with American Nobel laureate Steven Weinberg: "[W]e would not accept any theory as final unless it were beautiful." (Strevens 2020) But *as a system*, science never discovers Truth nor is beauty able to be defined scientifically. We have no idea what Truth is. Nor is beauty considered an important impersonal criterion for a theory's scientific status.

Instead, science provides us with the most *reliable* knowledge we can obtain *at the time* about the material world (Ziman 1978). We can never know if and when a non-confirming discovery might arise, replacing even the most confidently held theory with a much different one, as Einstein's theory of relativity did for Newtonian mechanics. From the perspective of science, even if we actually discovered Truth, we could never be sure.

Science depends on scientists solving puzzles about the physical world. But what defines an acceptable puzzle is shaped by the prevailing state of scientific knowledge. Perplexing puzzles from within a Newtonian perspective disappeared within a relativistic one. Questions such as the nature of quantum embeddedness would have been regarded as absurd from a Newtonian perspective. At any moment, what counts as good science depends on the community's judgement as to whether a puzzle or announced finding is plausible as well as interesting (Polanyi and Prosch 1973, p. 134).

Like the rest of us, scientists' motives can be mixed. All-too-human failings of pride, rigidity, professional politics, ideology, ambition, and prejudice can shape individual scientists' motives as much or more than their personal dedication to seeking truth (Brooks 2016). Scientists also act within a culture that itself helps shape what is regarded as most interesting to investigate, and how to do so. At a personal level, beauty plays a role for many. Many accounts across all scientific fields describe this very human shaping what actual scientists do (For example, see Dreger 2016; De Waal 2013, pp. 98-100). Even in the absence of such factors, scientists' judgement always reflects their own personal perspective and evaluations as to plausibility, as demonstrated by the long debate about aspects of evolutionary theory between Charles Darwin and Alfred Russel Wallace. They never settled their debate, focusing as they did on different phenomena backed by different weighing of the evidence (Richards 2017, pp. 371-416).

Assume every scientist is personally motivated by the search for Truth. In seeking Truth, they follow the procedural rules accepted by their peers. Now let us suppose every scientist is primarily motivated to acquire fame and profit, treating their scientific work simply as a means to these payoffs. Long-term fame and profit arise from scientists following the procedural rules shaping their discipline leading to important findings, as is true for those motivated to seek truth.

Either way, science would provide us with the most reliable knowledge available in its fields. There would be less work in pure theory in the latter group because its payoffs are generally smaller. More effort would need to be spent policing claims because their devotion to truth will be weak. However, the pattern prediction of uncovering reliable knowledge would remain. The strength of the system forces scientists in to subordinate their values to the demands of the system. If they cheat, fame and profit will reward those who discover their cheating.

As a system, science ultimately dominates personal motives because it is internally self-correcting. As Frans De Waal noted, "Science is a collective enterprise with rules of engagement that allow the whole to make progress even if its parts drag their feet" (De Waal 2013, p. 100). Virtually every basic assumption with which early modern scientists began has been abandoned, as scientific investigations convinced scientists that other assumptions are closer to the truth (Toulmin 1990, pp. 109-115). *The achievements of modern science emerge from the system as a whole, are not reducible to its parts, and need not mirror scientists' personal values.*

SYSTEMIC VALUES IN MARKETS

The same is true for markets, which generate prices giving us signals to what resources can be most efficiently used (in monetary terms) among competing possibilities. Systemically, prices signal a resource's economic value at the time, relative to other priced means for meeting consumer demand. Personally, I can seek a profit because I wish to support my family. I can seek a profit because I want the admiration that comes from my being rich. I can seek to profit because the resources I acquire enable me to pursue another project of great importance to me. *It doesn't matter.*

Ludwig von Mises emphasized separating ends and means in human action (1963, p. 40). Instrumental rationality is the rational use of pure means to attain completely separate ends. Such action is always a "cost," deriving its value from the end towards which it is directed. (These costs are not the same as opportunity costs, which exist for all actions, even pure consumption.) This is a clear description of the market's systemic values, which can be far removed from most *human* action, that is not purely instrumental.

An economy of saints would generate the same market process *pattern* as an economy of sociopaths, so long as they followed the rules, but it is the sociopaths who approach every action as instrumental. The details of what is valued and what is produced would vary between saints and sociopaths, but the role of prices and how they form would be the same. In both cases price signals need to be interpreted. A saint might interpret rising prices as a need to invest in making more of the item, to help others. The sociopath would interpret rising prices as a chance to make money. Both would create more of the item in short supply. The

motivations are different, as is the nature of the action, but the patterned results would be the same. For pattern predictions, *individual choices and values do not matter, following the rules matters*.

In the market, accumulating money is systemic success, and money's value is purely instrumental. The systemic value given precedence in the market process is: how useful is something for a purpose other than what it is now. Market feedback signals something's suitability for becoming something it isn't (diZerega 2019b; 1997).

All spontaneous orders independently shape society, transforming the environment in which people live, independently of their personal values. The market is the most powerful of these orders because everyone has needs. However, very few people would say their highest hope for their own lives, or that of their children, is to become satisfied consumers.

ANSWERING TWO QUESTIONS

These examples enable us to answer a question Bruce Caldwell raises in *Hayek's Challenge*. Given the shortcomings of methodologically individualist models of economic action, he asks why did "simple, unrealistic models seem to allow us to make passably workable pattern predictions about a complex world?" (2004, p. 387). The predictions were as good as they were not because their models describe human action, but because their models assume action is instrumental, thereby identifying the system's values with human agency (For example, Boettke 2019, p. 165; Boettke and Vittel 2016, p. 52n, 13; Rothbard 1962, p. 4). Outside economics the models do not work as well because feedback is not in prices, and even in economics, if Henrich's studies of WEIRD psychology is true, they are misleading.

Distinguishing between individual and systemic values also clarifies a confusion as to the nature of spontaneous orders. Polanyi wrote spontaneous orders were created to seek single values. Science pursues truth, law pursues justice, and the arts pursue beauty. He described these as higher, 'spiritual" values because they can be shared, without being used up. They are not consumed. By contrast "an automobile coming off an assembly line . . . is nothing at all unless some individual consumes it" (Polanyi and Prosch 1973, p. 199). However, for Hayek, spontaneous orders have no purpose of their own, but serve as frameworks through which individuals can pursue many, and often conflicting purposes.

Distinguishing systems values from those of people acting within them eliminates this apparent difference. Most scientists believe science is the most promising way to seek truth about the material world. But *as a system* science pursues reliable knowledge, which gives us the closest approximation to the truth many scientists believe we can achieve.

What of the market? People in the market use price signals to pursue an extraordinary range of values. The market makes this possible by reducing all within it to price data. For all but the final goods produced, something's utility in becoming something other than what it is. A car without buyers is worthless as a car. But people acting within markets are motivated by a wide variety of values.

Polanyi seemed to have had a weak sense of systems as applied to complex phenomena and Hayek did not emphasize systemic biases and values. Hayek and Polanyi's seemingly contradictory positions disappear when we realize they are looking at different dimensions of the same processes.

THE CASE FOR 'COMPLEX METHODOLOGICAL INDIVIDUALISM'

Some advocates of methodological individualism argue criticisms such as mine can be successfully incorporated into what Francesco Di Iorio describes as "complex methodological individualism." It merges "the concept of methodological individualism with that of a self-organizing complex system" (2016, p. 5). For Di Iorio "individuals are self-determined beings and . . . social order, and social phenomena more generally, must be explained as largely unintentional results of human actions—actions explainable on taking into account the meanings that individuals attach to them . . ."

Di Iorio observes society is an emergent property of individual action. While social conditioning exists, people's interpretive skills mediate between society and human action. "Society" is simply a collective noun referring "to individuals *and the systemic* and irreducible properties that emerge from their existence, their beliefs, their intentions, and their interactions" (2016, p. 2, my emphasis).

There are serious problems here. Most importantly, individuals as human beings are *also* emergent properties of the societies in which they live. Each is crucial in bringing the other into existence. Di Iorio sees causality flowing only in one direction when in fact it flows both ways.

Di Iorio also seems to use "emergent" as an equivalent for "unintended consequences," referring to the price system as an 'emergent' quality of markets (2016, pp. 4, 5). To be sure, it arises from a functioning market but, other than improving the use of limited means for whatever goals a person seeks, the price system has no impact on what those actions will be. In economics, the price system does not change people, it signals the availability of different means to their economic ends.

But the issue here is not that unintended patterns arise from individual actions, it is that *qualitatively new* unintended circumstances emerging from individual actions *react back* upon the actors, changing them, which in turn changes their actions. It literally changes how people think.

Hayek recognized the importance of these effects, which is why he supported a guaranteed annual income as not only "legitimate" but even "necessary" for people who no longer live with the security offered by small pre-capitalist groups, and "find themselves without help when, through no fault of their own, their capacity to earn a living ceases" (1979, p. 55). Involuntary unemployment from the current covid pandemic is an excellent example.

Earlier I described findings that members of more traditional cultures treated strangers in ways compatible with the rational actor model, whereas people immersed in powerful market economies treated strangers more fairly (Henrich 2020, pp. 210-19). Additionally, people's impersonal trust in others is significantly correlated with increased interorganizational competition (Henrich 2020, pp. 340-8). Like prices, these important effects arose from human action but not human design, but unlike prices, these emergent qualities exert important causal impact on what humans seek to do and how to do it.

Without individual action, intersubjective collective beliefs, spontaneous orders, and the institutions arising within them would not exist. But without emergence in the sense Lewis and I have described, people as we understand them would not exist. Causality runs both directions, human agency and social structure "are both preconditions for and a consequence of the other" (Lewis 2010a. p. 13). This has been the case since long before human beings existed. This causal circularity is missing in Di Iorio's analysis.

Di Iorio argues methodological individualism as a principle can be traced from the Scottish Enlightenment to Menger to Mises to Hayek. This genealogy is flawed. In Menger's time neither the terms systems theory nor methodological individualism existed. Coming from a Weberian perspective, Joseph Schumpeter coined the latter term (Schumpeter 1909; Udehn 2001, p. 214). One could still argue 'methodological individualism' was implied by Menger as the foundational methodology in the social sciences, but the truth is more complex.

Menger employed what we call methodological individualism to understand complex *economic* phenomena (Menger 1985, pp. 93-4, 195-6). But the individual knowledge, plans and actions that generate economic phenomena take place within a larger social context where, in Menger's terms, each part of society "serves the normal function of the whole, conditions and influences it, and *in turn is conditioned and influenced by it* in its normal nature and its normal function." (Menger 1985, p. 147, my emphasis). Menger describes a system in Bertalanffy's terms, *within which* methodological individualism is essential to understand economic phenomena as a part of it. While he lacked the later vocabulary, Menger recognized the systemic nature of social processes more generally, *within which* he focused on narrowly economic issues.

Significantly, Ludwig von Mises never cited Menger's work on methodological issues, in Lawrence White's terms, filtering them out from his discussions of methodology (White 1985, p. ix). As I remember reading Mises, and Bruce Caldwell apparently agrees, while recognizing individuals were socially embed-

ded, he was uninterested in how their choices and actions were made, only that, whatever they might be, "praxeology" could encompass them (Caldwell 2004, pp. 129, 193-6).

Mises' failure to mention Menger takes on added significance when we consider Hayek's dropping Locke from his association with the Scots when he shifted from emphasizing their individualism to their laying the foundation of evolutionary analysis. Absences such as these are as significant as presences in understanding what groups share in common.

Di Iorio might still argue that, complex as it is, the entire process begins with individuals making decisions and choices. But beginning with an individual or a species when analyzing any complex adaptive system is a pragmatic step, not a principled one. One could as well analyze the system's pattern and then explore how it acts causally on the individual organisms within it. whose actions subsequently reinforce or change the pattern. This is common when studying an ecosystem. Where to start analysis is a matter of practicality.

A systems approach acknowledges both causal directions. Only when the system's reciprocal causal impact on its parts is integrated with its parts' impact on the system do we have a good analysis. This observation eliminates the false dichotomy Di Iorio describes between individualism and a holism "of superhuman hidden powers and individuals as unconscious instruments of those powers" (2016, p. 2; also see Boettke and Lopez 2002).

OUTGROWING METHODOLOGICAL INDIVIDUALISM

Step One: Systemic tensions within a spontaneous order

Hayek wrote the market order "is a system which imposes upon enterprise a discipline under which the managers chafe and which each endeavours to escape" (Hayek 1973, p. 62). His observation is in harmony with Adam Smith famously observed "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices" (Smith 2003, Book I, Chapter X). Smith and Hayek are describing a *systemic* tension as it manifests within a *particular* spontaneous order, rather than merely the failings of some individuals. Because the value biases of the market as a system, and business organizations as systems seeking to survive can conflict, the problem lies deeper than individual choices.

Some Austrian methodological individualists are seeking a way to integrate Austrian methodological individualist analysis with that of Max Weber (Boettke and Storr 2002). Here is a largely unexplored opportunity to deepen their analysis. But they need to learn from Weber rather than just tacking him on.

Weber's ideal types help us understand dynamic relationships. Weber scholar Reinhard Bendix wrote "Every [ideal] type . . . represents an effort to reconcile tendencies of thought and action that would be irreconcilable if each tendency were elaborated fully and with complete logical consistency" (Bendix 1962, p. 410n). For example, in human societies authority can be described in pure ideal typical terms as traditional, charismatic, or legal rational. However, due to the interplay of institutions and human motives, pure types rarely exist in actual societies, and in practice there is always a tension and contestation as to their mutual relationships. Bendix explained "a fully consistent charismatic leadership is inimical to rules and tradition, but the disciples always wish to see the leader's extraordinary capacities preserved for everyday life." Success undermines "the charisma they consciously mean to serve" (Bendix 1962, p. 296). Weber used ideal types "to sort out the constituent elements in each empirical constellation and to pinpoint the areas of possible tension . . ." (Bendix 1962, p. 410, n). The nature of organizations is influenced by, but also influences the kinds of leadership most suited to it (Price 2012, pp. 14-22).

I have adopted a similar approach in contrasting the contrasting systems of market and organizations, which necessarily exist within complex markets. The same tension arises between organizations and the

spontaneous orders of science and democracy. "Spontaneous order" and "organization" are ideal types within whose relations human beings navigate.

Systemically, *all* successful organizations in *all* spontaneous orders are in the *same* systemic situation. The order that made their success possible can also undermine or end it. Political parties seek to insulate their elected officials from electoral challenge by tilting the rules in their favor. Successful businesses seek to influence legal rules and obtain political favors to strengthen their position. In science, schools of thought often deny alternative perspectives positions within their departments. Methodological individualists tend to pick out this pattern in the market, and call it "crony capitalism." But while individual intentions certainly matter, so do the systemic incentives facing organizations within spontaneous orders (diZerega 2015). The term "crony capitalism" misdiagnoses a problem inherent in the nature of capitalism, and in all spontaneous orders (diZerega 2019b).

A sophisticated methodological individualism can take us this far, and to be sure, that is quite a way. But as our examination of Berger and Luckmann's analysis demonstrates, it is easy to move deeper, integrating a Weberian approach into a more inclusive systems theory.

Step Two: Systemic tensions between spontaneous orders and actors within them

Advocates of methodological individualism treat organizations simply as extensions of human intentions, made more powerful by being organized. For example, Peter Boettke and Edward Lopez contend "selves" were fundamental and irreducible units in social action, and governments and other organizations are akin to machines created to pursue some goal or set of goals, a task they can perform better or worse. They write "government is neither a collective entity nor an instrument of ruling classes, but a vehicle or 'machine' by which individuals choose to act in concert with one another for the purpose of producing collective goods" (Boettke and Lopez 2002). Organizations are simply tools.

Boettke and Lopez emphasize two important characteristics of individuals that differ from earlier rationalist models of society: all people have limited knowledge and we cannot assume anyone's benevolent motives. But important as these insights are, (and they are very important) they remain inadequate to build a solid foundation for liberal thought, let alone social science.

Organizational logic leads organizations to redefine their reason for existence in ways harmonious to the perpetuation of the organization and its power. As they do this, people within the organization generally come to do the same, identifying with the organization, over its original reason for being created (diZerega 2015). Those who do not fit are excluded. This is why whistleblowers are not only rare, they are frequently ostracized, and sometimes worse, by the organization's other members (for example, see Maas 1973). As Paul Lewis states more generally, "When individual elements are arranged into structures, their behavior is often different compared to when they are isolated from each other" (2019, p. 6).

This finding is hardly unique to human groups. A fascinating study of stickleback fish demonstrated that as individuals they behaved with significant differences in initiative and boldness when seeking food. However, when in a group, the individual distinctiveness of particular fish "faded away" (Goldman 2016, p. 24). Group dynamics may well be an independent factor influencing the behavior of many species besides ours.

Organizations are not 'tools' as Boettke and Lopez suggested. They actively shape the priorities and even the personnel of those within them. Hayek was aware of this problem, suggesting organizations are distinct from individuals to some degree, and so *independent actors* in the cultural realm (Hayek 1973, pp. 466-8; 1988, p. 37). Any analysis that fails to confront this reality attributes to individual motives and values what are in fact values arising from an individual's prior relationships with an organization.

Hayek identified another tension. In *The Constitution of Liberty* Hayek wrote employed people naturally came to see society as "one great hierarchy," likely caused by the ever-growing influence of large organizations (Hayek 1960, p. 119). Years later he elaborated (1976, p. 134):

> One reason why in recent times we have seen a strong revival of organizational thinking and a decline in the understanding of the operation of the market order is that . . . an ever increasing part of the people spend their whole working life as members of large organizations, and are led to think wholly in terms of the requirements of the organizational form of life.

Organizations that act successfully in markets operate on opposite principles to those of the market order. Not only do business organizations chafe at market constraints and uncertainties, they also shape the thinking of those within them, who constitute an increasing percentage of the population. They in turn shape the cultural context within which markets operate. As a critique of why total economic control by the state would lead to a totalitarian outcome, Hayek's *Road to Serfdom,* is, more abstractly, an exploration of the inner logic of *Taxis* without external checks.

The inadequacy of methodological individualism as a foundational principle deepens once we take seriously the existence of multiple spontaneous orders. Boettke and Storr acknowledged the existence of multiple spontaneous orders, but seem not to grasp their dynamic interrelationships (Boettke and Storr 2002, pp. 172-6).

Step Three: Systemic Tensions when acting within two or more spontaneous orders

A second major tension exists between spontaneous orders themselves when organizations must act successfully in more than one such order. This issue first became clear to me when, as a Political Scientist, I studied the American media's political role (diZerega 2004). Today the press largely responds to two self-organizing value systems: the market and democracy. To survive, it must be economically viable, but to justify constitutional protection as an essential part of a democratic polity, it must be a watchdog and informant on public affairs. The pressures to serve one can undermine serving the other.

For example, Leslie Moonves, then executive chairman, president, and CEO of CBS defended their one-sided focus on Donald Trump during the 2016 Republican primaries: "It may not be good for America, but it's damn good for CBS," he said of the presidential race. "The money's rolling in and this is fun." He observes "I've never seen anything like this, and this going to be a very good year for us. Sorry. It's a terrible thing to say. But, bring it on, Donald. Keep going" (Bond 2016).

And Donald did. This example alone should be enough to make my point.

Step Four: Systemic Tensions Between Spontaneous Orders

If spontaneous orders need not reflect the values of those acting within them, and their emergent properties influence the thinking and values of those acting within them, *how do different spontaneous orders interact?* Individual spontaneous orders' general patterns emerge from people following simple procedural rules generating useful feedback signals. However, when we look at the mutual influences of *different* spontaneous orders on *one another*, there are no common simple relations shaped by procedural rules generating standardized feedback signals, such as prices.

Research costs money and, when done by market-based organizations, financing is dependent on the possibilities of making a profit from the discoveries. For example, snake bites kill at least 20,000 people annually and effective antivenoms have existed for some time. Even so, they are expensive to produce and there is so little demand that the pharmaceutical company stopped making them in 2003 (Heineman 2016). In a related example, research on nonpatentable natural ways for treating diseases is hamstrung compared to research that can generate exclusive patents to recoup expenses and make a profit.

From a different direction, in the market information's value is reflected in the price people are willing to pay for it, or to keep it from others. In science information is ideally treated as available to all who might want it, at no price. The tension is innate. For example, in the 1970s oil companies had discovered the

Chicxulub crater that brought an end to the Cretaceous period, but regarded the evidence as proprietary. This information did not reach scientists seeking the crater for years (Sumner 2017, p.17).

From yet another vantage, what is valuable knowledge in science is not connected to what is valuable in the market. James Clerk Maxwell and Heinrich Hertz who worked out the bands of electromagnetic waves were not motivated by commercial opportunities. Albert Einstein did not develop the Theory of General Relativity for practical purposes.

Sometimes the 'useless knowledge" scientists seek ends up being very important commercially, but often such motives often do not play a role in discovery (Cossins 2017). This is even true when the discovery is potentially very profitable in market terms. Jonas Salk refused to patent his polio vaccine. In 1923, Frederick Banting, along with James Cillip and Charles Best, invented insulin in 1923, and sold the patent to a university for $1. Now that it has been modified and surrounded by corporate owned patents, the annual average cost for treating diabetes in the US is $5,705 (Pulu 2021).

Science is predicated on the logic of the gift economy, where rewards come to those who make "contributions" to their field (Hyde 1979, pp. 77-83). The market is based on producing commodities and services for sale. Scientists want their contributions to be freely available to all who are interested whereas the logic of the market wants them to be available to those willing to pay for them. When the two interpenetrate, as with the commercialization of scientific journals, problems arise (Andrei 2020; Buranyi 2017; Curry 2012). On the other hand, when scientific research can be freed from market constraints through innovative institutions, it can be invigorated and enhanced (Hardwick 2011).

As these examples demonstrate, there is no common feedback.

Those seeking to work within the context of methodological individualism, even in its most sophisticated forms, apparently fail to see these issues. For example, Peter Boettke correctly observes, that "One simply cannot do political economy without addressing the institutional infrastructure within which economic activity takes place" (Boettke 2019, p. 168) But his one-dimensional treatment of spontaneous orders leads him to write "Liberalism, correctly understood, is little more than the persistent and consistent applications of the principles of economics to the affairs of men…." (Boettke 2019. p. 200). This is simply false.

Michael Polanyi observed: "in the free cooperation of independent scientists we shall find a highly simplified model of a free society" (1969, p. 11). Developing Polanyi's insights, physicist John Ziman wrote "The whole ideology of Science, the principle of a *freely* accepted consensus implies a society in which there is general freedom of speech and comment" (Ziman 1968, p. 116). Scientists most definitely do not apply "the principles of economics to the affairs of men." Science's dependence on the gift relationship among scientists is fundamentally different from economic reasoning (Hyde 1983).

Without a common feedback between systems, the coordination problem as discussed in economics and other spontaneous orders *does not exist*. Different systemic values expressed within different spontaneous orders interpenetrate in ways both advantageous and disadvantageous. There is no equilibrating tendency because there is no equilibrium, even theoretically.

CIVIL SOCIETY: A HIGHER ORDER SYSTEM

When multiple spontaneous orders interact, a new level in the hierarchy of systemic complexity arises: *a polycentric system of polycentric systems*. At every step in the hierarchic systemic elaboration of the human world, and complexification of social structures, we find emergent structures *both* facilitate *and* shape human agency. In addition, we find human beings can and will react creatively to both the constraints and opportunities (Lewis 2000b, p. 259). At every level of systems hierarchies, new properties emerge from and react causally on those below.

These considerations enable us to consider a higher order of system than a spontaneous order. We must be careful here about terminology. Hayek did not distinguish between spontaneous orders in the sense I have used the term and other uses of the term, as when he described society as a whole as a spontaneous order containing "*numerous other spontaneous sub-orders or partial societies of this sort as well as of the*

various organizations existing within the comprehensive Great Society" (1973, p. 47). Spontaneous orders exist within other more inclusive spontaneous orders. In describing Hayek's unfinished manuscript, "Within Systems and about Systems." Bruce Caldwell writes "In his model, communication takes place between two systems, each system being a classificatory system that itself contains numerous classificatory systems" (Caldwell 2004, p. 299). In Bertalanffy's terms, Hayek is describing a *higher order* system than a spontaneous order in the sense I have developed in this paper.

What I, and many others, call "civil society" is the higher order complex adaptive system that emerges from a social ecology of many simpler complex adaptive systems, or spontaneous orders (Novak 2018). It encompasses all consensual relations between non-intimates who possess equal legal status and freedom to engage in individual or cooperative enterprises. All are independent equals (Hardwick 2008).

Equal status is not a procedural rule about how to do something, but how to relate to others, facilitating peaceful cooperation along whatever lines, and in pursuit of whatever values people choose that are compatible with them. This includes markets, science, the arts, religion, recreation, and anything else people can do cooperatively or individually without violating others' equal rights. Civil society constitutes the only sphere of social existence other than that of intimates where the full range of consensual values and virtues can be expressed without some of them being penalized by systemic biases.

Civil society shares with spontaneous orders traits such as equality of status and formally voluntary relationships, but these traits do not generate a discovery process shaped by system-wide feedback. In this respect civil society is more like a complex emergent linguistic system than a spontaneous order. *There is no single coordination problem because there is no standard by which more effective coordination can be judged.* Lack of standardized feedback and the value it reflects means there is not even a minimal 'self.' Civil society is biased in favor of no particular value other than enabling voluntary cooperation in whatever form it takes that does not injure others' similar capacity. Boettke's claim the market is not teleological was mistaken, but at the next level in systemic hierarchy his statement applies. *Civil society, not the market, is the ultimate expression of liberal principles.*

Civil society in the sense I use the term is an expression of liberal modernity. Entrepreneurs, markets and price signals long predated civil society. Individuals deeply devoted to understanding the nature of the physical world long predated modern science. Athens embraced political equality for its citizens over a thousand years before anything close to an inclusive civil society arose. Common law existed in societies with deeply entrenched status inequalities. In themselves these traits were not evidence of a liberal society. Liberal society was the unintended result of changes in how people engaged with one another, an emergent quality arising from equalizing status and freedom across far broader populations than ever before (McCloskey 2017).

David Hume was perhaps the most insightful observer of its early rise. As Hume (1985, p. 271) described the complex new society emerging in England:

> The more these refined arts advance, the more sociable men become . . . They flock into cities; love to receive and communicate knowledge; to show their wit or their breeding; their taste in conversation or living, in clothes or furniture. Curiosity allures the wise; vanity the foolish; and pleasure both. Particular clubs and societies are every where formed: Both sexes meet in an easy and sociable manner; and the tempers of men, as well as their behaviour, refine apace.

In Hume's time most people were still barred from such lives, but what existed was still far beyond anything that previously existed.

In *Democracy in America*, Tocqueville meant by "democracy" not a system of government, but a society where, to an unprecedented degree, citizens enjoyed equal legal status. Tocqueville observed (1961, p. 216):

> In no country in the world has the principle of association been more successfully used, or more unsparingly applied to a multitude of different objects, than in America. Besides the permanent associations which are established by law under the name of townships, cities, and counties, a vast number of others are formed and maintained by the agency of private individuals.

That this description primarily included white men in Tocqueville's time is irrelevant to my point. Despite this shortcoming, American society was radically different from European societies defined by legal distinctions between all classes of people. In the new U.S., all male citizens were supposed to be equal in basic rights, and many rights were shared by women. More importantly, in principle these values could be applied universally to humanity as a whole, institutionalizing a reform agenda for the future.

As in spontaneous orders, the dynamic relationships within civil society are not intuitively obvious. In fact, they are even harder to grasp because civil society weaves together so many such orders and many rules are tacit. A French market place would be easily comprehensible to an American visitor, as an American one would be to the Frenchman. It was the broader cultural context within which the market existed that was different. Tocqueville observed, "No sooner do you set foot upon the American soil than you are stunned by a kind of tumult; a confused clamour is heard on every side; and a thousand simultaneous voices demand the immediate satisfaction of their social wants" (Tocqueville 1961, p. 292). But under this incessant tumult, a kind of order existed. "The appearance of disorder which prevails on the surface, leads [a European] at first to imagine that society is in a state of anarchy; nor does he perceive his mistake till he has gone deeper into the subject" (1961, p. 90).

What is the nature of this order?

Spontaneous orders provide essential structure to the intricate social ecology of civil society. Not only do they provide feedback signals in their own terms, these signals provide important information to people whose motivating values are different from those shaping the systems they use.

Civil society provides a context within which more specialized kinds of cooperative systems can blossom in all the ways human beings are capable of attaining (diZerega 2014, p. 50). No single standard of systemic success or failure exists. Individuals have wide latitude as to which kinds of feedback to attend to, and how much. So long as relationships are between status equals, success or failure is a matter of individual judgement. Within civil society human choice trumps any given feedback signal.

What prevents chaos within civil society, along with the coordinating impact of spontaneous orders, is the system of customary, and often tacit, rules governing relations that preserve equality of status and formally voluntary relationships by facilitating trust. For example, expecting promises to be kept, even when not legally enforceable, goes well beyond supporting market economies (Henrich 2020, p. 299). People are expected to usually be truthful, even without a contract. Other tacit rules could vary significantly from society to society, but still be important in facilitating cooperation, such as what constitutes appropriate social distance.

Importantly, civil society cannot be defined simply in terms of the intersection of spontaneous orders. If these orders provide a unifying system of signals, how those signals are utilized will be shaped by many other cultural elements. Germany and France are both civil societies, but remain distinctly Germany and France. Networks of these cultural elements coordinated by spontaneous orders give them their coherence. And these cultural factors cannot be taken for granted.

UNDERMINING CIVIL SOCIETY

Suppressing or systemically distorting communication networks within civil society can undermine its capacity to facilitate rich networks of cooperation. As we are discovering with the way social media has evolved, tacit rules of trust can break down even when immersed within strong market, scientific, and democratic systems.

Social media companies need to earn income to support themselves and encourage investment, but the internet was based on the scientific ideal of information ideally being available to all (Markoff 2005). The systemic values of science and the market clashed. The solution was to sell advertising based on information social media companies acquired from their users. Revenue would come from advertisers. But, as Tristan Harris, formerly with Google, observed, "If the product is free, you're the product" (Enright 2020). Users were not customers, advertisers were.

The success of social media as a profit center depends on addictive strategies to ensnare users. They often work. Harris notes "The average person checks their phone 150 times a day. Why do we do this? Are we making 150 conscious choices? One major reason why is the #1 psychological ingredient in slot machines: intermittent variable rewards . . . Addictiveness is maximized when the rate of reward is most variable." This principle is also what makes slot machines so profitable (Haselton 2018). The algorithms manipulate how, when, and what information becomes available to users. Users serve advertisers rather than advertisers serving users (Zuboff 2019).

But this practice can dissolve social trust. Different people searching for "climate change" often won't get the same results. Google uses the data it collects to create user profiles and produces microtargeted search results for individual users. Social media companies use information derived from prior use to feed users information congruent with their beliefs, creating echo chambers where everyone can live within their own Truman Show (IMDb, 1998). Depending on who you are and where you live, googling "outdoor grills" or "climate change" will generate different lists. Some will contradict one another (The Social Dilemma).

Seeking information about a common issue, people end up in different knowledge universes that can be politically or culturally divisive. This outcome is not the intent of the searcher, nor the platforms, but results from algorithms used to select sites of interest to users while subordinating them to seeking money from advertisers. What may be irrelevant for "outdoor grills" can become deeply divisive for "climate change."

In a study analyzing over 2 million recommendations and 72 million comments on YouTube in 2019, researchers found viewers consistently moved from watching moderate to extremist videos. Simulation experiments run on YouTube revealed its recommendation system steers viewers towards politically extreme content, exposing "a comprehensive picture of user radicalization . . ." (Ribeiro 2019).

Fake stories are designed to attract attention, and so, clicks. Viral fake election stories outperformed genuine ones on Facebook. Three times as many Americans read and shared the most popular fake election news story on their social media accounts compared to the top-performing article from the *New York Times* (Silverman 2016).

In August, 2020, a study exposed 82 websites spreading Covid misinformation reached a peak of nearly half a billion Facebook views in April. The 10 most popular websites drew about 300 million Facebook views. By comparison 70 million views were recorded for 10 leading health institutions (Zuboff 2021).

Many people are drawn ever more deeply into conspiracy sites, fragmenting society, undermining trust in fellow citizens, science and elections. Tacit values are undermined (Zuboff 2021). All too often people who would otherwise never 'go there' are led into sites promoting political violence. After an attempted right-wing coup against elections and the constitution Jan. 6, Facebook's algorithms were 'bombarding' algorithmically identified right wing users with ads for combat gear (Vamos 2021).

If 'users' owned their data and had to pay for access to social media as consumers pay for Netflix, social media's systemic impact upon consumers would be quite different than it is on users, even though people's motivations for using the media would remain largely the same. (Lanier 2019) This is a systemic issue and any effective treatment must be understood systemically.

EMERGENT QUALITIES IN CIVIL SOCIETY

Within civil society spontaneous orders collectively shape the social environment two steps removed from being explainable by individual actions. Those acting within such networks are motivated by individual

values, but these values are shaped by the contexts within which they live. The values reinforced by a spontaneous order are systemic values, and different systems privilege different and nonreducible values. The collective patterns of such interactions in turn shape the values and actions of the individuals acting within them. As my discussion of social media illustrates, disrupting communication channels within civil society can be as destructive as similar disruptions in market price systems, scientific publications, or democratic elections.

Recent studies of Western societies as "WEIRD" (Western, Educated, Industrialized, Rich, and Democratic) compared to other people apparently illustrates emergent qualities arising from civil society. If Hume and Tocqueville's descriptions are accurate, there appears to be a particularly nice fit between civil society as I have described it and findings that, compared to others, modern Western societies are WEIRD. This insight is rooted in systems theory, not methodological individualism. Bruce Caldwell gets it right, I think: the term methodological individualism "is no longer helpful and should be banished from the vocabulary, at least of those who would describe Hayek's ideas" (Caldwell 2004, p. 419).

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