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Review

Human Flourishing from a Complex Adaptive System Perspective: Exploring the Wellbeing of Social Groups as Emergent Entities

Tim Lomas [1,2,*], Dennis Snower [3,4], James O. Pawelski [5], Brendan W. Case [1,6], Matthew T. Lee [7], Jonathan D. Teubner [1,6] and Tyler J. VanderWeele [1,2,8]

1 Human Flourishing Program, Harvard University, Cambridge, MA 02138, USA; brendan_case@fas.harvard.edu (B.W.C.); jteubner@fas.harvard.edu (J.D.T.); tvanderw@hsph.harvard.edu (T.J.V.)
2 Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA
3 Global Solutions Initiative, 10178 Berlin, Germany; dennis.snower@global-solutions-initiative.org
4 Said Business School, University of Oxford, Oxford OX1 1HP, UK
5 Positive Psychology Center, University of Pennsylvania, Philadelphia, PA 19104, USA; pawelski@psych.upenn.edu
6 Faculty of Arts and Sciences, Harvard University, Cambridge, MA 02138, USA
7 Institute for Studies of Religion, Baylor University, Waco, TX 76798, USA; matthew_t_lee@baylor.edu
8 Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA 02115, USA
* Correspondence: tlomas@hsph.harvard.edu

Abstract

Can qualities of wellbeing and flourishing be meaningfully applied at the level of the social group, not merely as an aggregation of the wellbeing or flourishing of its members, but on its own terms as an emergent entity? This paper proposes that this is indeed the case, over three sections. First, we introduce the notions of wellbeing and flourishing, and note that these are usually applied to individual humans, not to groups (other than as the sum of the wellbeing/flourishing of their individual members). Second, to explore whether wellbeing/flourishing can apply at the group level, we elucidate the idea of a complex adaptive system (CAS), exploring work which argues that both individuals and groups constitute CASs, albeit different kinds. Finally, we consider some qualities by which a group itself could be deemed as flourishing.

Keywords: wellbeing; flourishing; individual; group; complex adaptive system

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1. Introduction

This paper explores whether wellbeing and flourishing meaningfully apply at the level of the social group as emergent qualities. Although these outcomes are more commonly ascribed at the level of the individual (i.e., a person can be said to have wellbeing or to be flourishing), there is also a burgeoning literature that seeks to apply these to social groups, featuring concepts such as family wellbeing (Heymann et al. 2017) and relational wellbeing (Holmberg and MacKenzie 2002). However, much of this work, while ostensibly about the group, still has a predominantly individual focus, with group wellbeing often simply appraised in terms of the group's ability to facilitate the wellbeing of its individual members, or alternatively as the sheer aggregation of its members' wellbeing. Our focus here by contrast is whether groups can experience wellbeing and flourishing on their own terms. We explore this idea over three main sections. First, we introduce the notions of

wellbeing and flourishing, and argue that these are usually applied to individuals, though we do identify some work that has applied these concepts to groups themselves. To then further explore whether such notions can apply at the group level, we elucidate the idea of a complex adaptive system (CAS), showing that both individuals and groups constitute CASs, albeit different kinds. We then argue that wellbeing and flourishing *are* applicable to social CASs—even if there are meaningful differences to how these are usually applied to individual people—and identify some key qualities of flourishing groups.

2. Wellbeing and Flourishing

Wellbeing and flourishing are increasingly prominent concepts across myriad academic fields. However, these tend to usually be applied to individuals, and even concepts pertaining to group wellbeing/flourishing mostly focus on the group's ability to facilitate these outcomes in its members or as the sheer aggregation of its members' wellbeing or flourishing. Our interest here though is whether groups can be said to experience their own emergent forms of wellbeing and flourishing. To provide the foundation for this exploration, this first main section thus introduces the notions of wellbeing and flourishing themselves, elucidating some prominent ways in which these have been conceptualized in the literature. Following that though, we highlight some more recent work that has applied these at a group level, which we then build upon in the subsequent sections.

2.1. Wellbeing

Over recent decades, wellbeing has become embraced as a key concept across numerous areas of academia and public life. Yet despite this burgeoning interest—or perhaps because of it—it is notorious for eluding clear consensus on what it means, and the numerous works surveying its definitions invariably emphasize how elusive is any broad agreement (e.g., Sumner 1996; Ereaut and Whiting 2008; White 2008; Wassell and Dodge 2015; Barrington-Leigh 2022). In a UK policy context, for example, Ereaut and Whiting's (2008) report for the Department for Children, Schools and Families lamented the "significant ambiguity around the definition, usage and function" of wellbeing, with the discourse "at present particularly unstable" (p. 1). Nearly 20 years on, the situation has not improved much. Reviewing trends in conceptualizations of wellbeing (and related concepts), Barrington-Leigh (2022) suggests that while its use has risen sharply over recent years, it is "typically poorly defined." Despite having been embedded into policy and even law, its actual meaning tends to remain vague. Barrington-Leigh cites a Wellbeing Guidance for Appraisal document produced by the UK Treasury (2021), featuring a section entitled "What is wellbeing" that simply begins "Wellbeing is about how people feel" (though it goes on to note that "personal wellbeing is measured by the Office of National Statistics through subjective reports of satisfaction, purpose, happiness and anxiety").

Despite the somewhat confusing picture generated by such documents, there are still some common threads across the different definitions. An influential review by Sumner (1996) suggested wellbeing definitions tended to fall into two main types: subjective and objective. The former are based on people's own preferences, values, and experiences, as per the description of personal wellbeing in the Treasury document. One influential example is from Shin and Johnson (1978), who defined wellbeing—labelled as "avowed happiness"—as "a global assessment of a person's quality of life according to his own chosen criteria" (p. 478), with this subsequently widely operationalized as "life satisfaction." Another is Schimmack (2008), who views wellbeing as "the actual realization of subjective preferences" (p. 3). By contrast, objective definitions assume that wellbeing can be identified without reference to individual subjective preferences. Instead, these focus on various factors and conditions that reliably affect people's subjective wellbeing. The UK Treasury

(2021) document, for example, outlines ten "dimensions of wellbeing," which in addition to personal wellbeing (i.e., people's subjective experiences) include health, relationships, environment, "what we do" (e.g., work), "where we live," personal finances, governance, economy, and education and skills. These dimensions are thus highlighted as the key drivers of wellbeing experienced by the citizens of the country.

2.2. Flourishing

In addition to wellbeing, flourishing has also emerged as a prominent related concept. An early adopter was Keyes (2002) in relation to his observation that mental illness and health are not a simple continuum, but can be separated—physiologically, functionally, experientially—such that people can experience aspects of illness (e.g., anxiety) and health (e.g., meaning in life) concurrently. His "dual continua" model thus had separate spectrums for illness and health, placed orthogonally to create a four-quadrant model, involving a horizontal axis denoting the absence or presence of illness, and a vertical axis denoting the absence or presence of health. Most relevantly here, he labelled the upper quadrants—the presence of health, either with or without illness—as "flourishing." Other scholars subsequently also used flourishing to denote a positive vision of mental health. In "Flourish", Seligman (2012) developed his PERMA model, whereby flourishing is "an arrangement of positive emotion, engagement, meaning, positive relationships and accomplishment" (p. 16). Likewise, Huppert and So (2013) defined flourishing as "the experience of life going well. It is a combination of feeling good and functioning effectively. Flourishing is synonymous with a high level of mental wellbeing, and it epitomises mental health" (p. 838).

A broader view of flourishing has been developed by VanderWeele (2017) and his-colleagues. This builds upon a conceptualization of wellbeing that is operationalized to provide a basis for flourishing, such that the latter encompasses the former (e.g., Lomas and VanderWeele 2022; VanderWeele and Lomas 2023; Lomas et al. 2024, 2025). Wellbeing is defined generically as "the relative attainment of a state in which all aspects of a person's life are good, as they pertain to that individual." Flourishing is then even broader: "the relative attainment of a state in which all aspects of a person's life are good, including the contexts in which that person lives" (VanderWeele and Lomas 2023, p. 38). Flourishing is thus not "just" high levels of personal wellbeing (as in Keyes' and Seligman's formulation), but the person and their context doing well. Wellbeing thus pertains to individuals, while flourishing additionally concerns the systems in which they are embedded. It is possible and even not uncommon for people to attain some wellbeing in spite of their circumstances (even if the environment is important for attaining the highest levels). By contrast, here flourishing in principle implies being supported by one's environment—deriving etymologically from the Latin *florere* ("to bloom, blossom, flower")—and suggests adaptive interaction and consonance between the individual and their contextual systems, such that these help people within to prosper, and perhaps vice versa. Then, within this broad vision of flourishing, VanderWeele has developed a "Secure Flourish Index" (SFI) to capture key aspects of what it means for a person to flourish, with six domains: happiness and life satisfaction; health, both mental and physical; meaning and purpose; character and virtue; close social relationships; and financial and material security.

2.3. Applying Wellbeing and Flourishing to the Group

There are thus many ways of defining wellbeing and flourishing, and, for our purposes here, we will not insist upon any one particular definition, nor enforce a strict demarcation between them. Accordingly, we will use the terms somewhat interchangeably and often simply refer to them collectively as W/F. The crucial point here is that, across these dif-

ferent models and conceptualizations of W/F, these outcomes are usually seen as being experienced or attained by individuals. This point even applies to some of the more expansive visions of these concepts, such as VanderWeele's. While his conceptualization of flourishing does include the contexts in which people are situated, in operational terms his SFI framework mainly pertains to the individual. The focus on the individual even also applies to many of the various group wellbeing concepts that have emerged, including family (Heymann et al. 2017), relational (Holmberg and MacKenzie 2002), romantic (Katz and Tirone 2009), social (Thin 2020), school (Waters and White 2015), and organizational wellbeing (Sutton et al. 2016). In much of this work, the emphasis is usually still on the W/F of the individual members, with group wellbeing often referring either to the extent to which the group context facilitates its members' wellbeing, and/or to the aggregation of those members' wellbeing. Heymann et al.'s paper on family wellbeing, for instance, is focused on whether paid parental leave promotes "maternal and child health." Likewise, Waters and White's work on school wellbeing looks at how educational institutions facilitate "citizenship, virtue, and wellbeing" in students. Similarly, in Sutton et al.'s work on organizational wellbeing, the central issue is whether wellbeing programs in occupational settings engender "employee engagement and performance."

However, some scholars have begun exploring whether groups can develop their own forms of emergent group-level W/F (Group-W/F). VanderWeele (2019) provides an example of this perspective in his paper on "community wellbeing." This adapts his definition of flourishing, outlined above, to the community: "A community's flourishing might be understood as a state in which all aspects of the community's life are good." This includes the W/F of the individual members, as it would be odd to say a community is flourishing if its members are not. Crucially though, community W/F extends beyond the aggregate wellbeing of the members and includes aspects of community life that can only be understood at a social level. First, VanderWeele argues that to flourish as a community, it needs to be knitted together by strong and healthy relationships, characterized by trust, respect, mutual concern, support, and accountability. There should also be proficient leadership that cares about the community and its members, that can be relied on to do what is right, and has the skills and understanding to lead well. The community needs healthy structures and practices in place that sustain it, enable it to better carry out its life and work, and allow for the resolution of conflicts. It needs a shared common mission, whereby its members can together do more than would be possible for each individually, and which in turn contributes to the world more broadly. Finally, all these aspects of community life should give rise to a sense of belonging and satisfaction with the community. This analysis thus suggests that the domains of VanderWeele's SFI, which usually pertain to individuals, can be applied to the group to generate analogous domains at the community level. Happiness translates into a satisfying community, health into healthy structures and practices, meaning/purpose into common mission, character/virtue into proficient leadership, and close social relationships into good connections throughout the community. These structural analogues support the notion that concepts of W/F can be applied to, and indeed assessed within, social groups and communities, although further empirical research will be needed to corroborate VanderWeele's intuitions.

Another example of applying W/F at a group level is the SAGE framework, developed by economist Dennis Snower (Lima de Miranda and Snower 2020; Lima de Miranda and Snower 2022). This identifies four interrelated domains—Solidarity, Agency, Gain, and Environmental connectedness—each of which functions as both a foundational condition for human flourishing, and an evolutionarily shaped good. These dimensions are not merely instrumental means to wellbeing, but moreover are constitutive goods, which are intrinsically valuable contexts that are essential to human development. Solidarity refers to

the psychosocial mechanisms that sustain prosocial, group-level functional organization, including social cohesion, mutual trust, shared identity, and collective moral purpose. Agency represents the capacity of individuals and collectives to make decisions and enact actions they have reason to value, and is central to autonomy, deliberation, responsibility, and innovation. Gain refers to the material goods and services that sustain life in dignity. Finally, Environmental connectedness captures the human sense of embeddedness in, and responsibility for, the natural world, not only in a psychological sense but also a biological and practical one, which is increasingly needed in the face of ecological degradation (Rockström et al. 2009; Steffen et al. 2015). The SAGE framework thus identifies critical constitutive goods that create the social, economic, political, and ecological conditions under which humans can flourish. In contrast to frameworks that focus solely on individual psychological states or subjective experiences, SAGE emphasizes that wellbeing is co-produced within systems of relational and material embeddedness.

More broadly, such work can be situated within a long tradition of thought around the notion of the "common good." The concept has a complex, storied history, with many definitions and approaches developed over the centuries. The inception of the idea is often attributed above all to Aristotle, as especially elucidated in his text Politics (Aristotle 1998), generally dated to 335–323 BCE, which focuses on the city state as a particular type of community, which, like all communities, it is "established for the sake of some good." Aristotle's notion of the good of the city state—described using terms like *koinon agathon* ("common good") and *koinêi sumpheron* ("mutual advantage")—has been variously interpreted. Jaede (2017), for example, says that what he "always seemed to have in mind was the citizens' happiness or good life, which he understood to consist of "noble actions,"" whereas Hoipkemier (2018) by contrast argues the idea "is not synonymous with the good life, as has often been thought; it is a standard for evaluating political justice in light of what the city "actually is."" Since Aristotle, myriad other scholars have invoked and used the concept in various ways. Summarizing the current state of political discourse on the topic in the Standford Encyclopedia of Philosophy, Hussain and Kohn (2024) suggest it generally "refers to those facilities—whether material, cultural or institutional—that the members of a community provide to all members in order to fulfill a relational obligation they all have to care for certain interests that they have in common," with canonical examples ranging from the road system and the judicial system to civil liberties and clean air, with the term referring "either to the interests that members have in common or to the facilities that serve common interests".

Clearly, the notion of group W/F can be interpreted as aligning with work on the common good. But it does perhaps offer a relatively novel perspective on this established idea, especially in conjunction with, or viewed through the prism of, the notion of complex adaptive systems. It may help to envisage three extensive bodies of scholarship, existing in a Venn diagram: (1) the common good; (2) wellbeing and flourishing; and (3) complex adaptive systems. These traditions of work do have some overlap, with a meaningful area of intersection in the Venn diagram, which is what we are focused on here. However, although one can sometimes find works that intersect two of these sets of literature, it is rare to find one situated at the juncture of all three. In that regard, our hope and intention is that the paper can bring some new insights to each of these three established arenas of scholarship through the relatively unusual juxtaposition we present here. Thus, drawing on frameworks like SAGE and VanderWeele's community wellbeing, the third main part of our paper explores further what it means for a *group* to have W/F. First though, to provide a foundation for that discussion, we have to think more deeply about what exactly is a social group, and their similarities and differences with individual beings. For this, we need to delve into the idea of complex adaptive systems.

3. Systems Approaches

This paper advances the notion that, just like individual people, groups can also experience W/F, as elucidated in the third main part of the paper below. However, we also suggest that individuals and groups constitute very different types of entities—more specifically, different types of complex adaptive systems (CASs)—and so groups have their own unique forms of W/F that do not apply to the individual. To lay the groundwork for the subsequent discussion, this second main section introduces the idea of a CAS, in three parts. We begin by considering how a holistic systems approach—which includes the idea of CASs—has risen to prominence over the past century. We then introduce the concept of a CAS, before differentiating individual and group CASs.

3.1. Holistic System Thinking and Emergence

Across academia is an ever-increasing appreciation of the importance of thinking holistically and paying attention to systems. This is reflected in the cross-disciplinary application, across a myriad of fields, of paradigms that deal with systems, including general systems theory (GST), complexity theory, cybernetics, and chaos theory, and related concepts such as complex systems and CASs. While there are nuanced differences among these paradigms and ideas, they can be summarized in a single phrase: the whole is more (or other) than the sum of its parts. This is not a new idea: it was articulated as early as the fourth century BCE by Aristotle (2020) in his *Metaphysics*, Book VIII, in which he wrote "the totality is not, as it were, a mere heap, but the whole is something besides the parts" (1045a.8–10). Numerous thinkers would explore such ideas over subsequent centuries, but this perspective particularly took off in the 20th century. The social sciences saw the advent of the Gestalt school in Germany and Austria, generally dated to Wertheimer's (1912) work on perception, which emphasized that the qualities of the "whole"—such as visual stimuli like a face, or auditory stimuli like a melody—are not deducible from the parts in isolation, but must be appreciated as a holistic totality. Such ideas were also embraced in the sciences, most notably by von Bertalanffy (1928), founder of GST, who argued "The characteristic of the organism is first that it is more than the sum of its parts" (cited in and translated by Pouvreau and Drack 2007). Likewise, around this time, Smuts (1926) coined "holism" to capture these ideas. Importantly, these insights challenged the spirit of reductionism which dominated science at that time (and arguably still does), involving the idea that phenomena *can* be understood by focusing on its parts in relative isolation. By contrast, systems thinking, in all its varieties, emphasizes non-reductive attention to the dynamic processes of the whole.

This non-reductive idea of the whole being "more" or "other" than the sum of its parts would become referred to generally as "emergence." Coined by British philosopher Lewes (1877), it was embraced across different fields to explain all manner of phenomena that were perplexing scientists, perhaps above all the mystery of life itself emerging out of "lower level" physical constituents that in themselves are not living. As Samuel (1920, p. 46) put it, "Physical and chemical processes of a certain complexity have the quality of life . . . The higher quality emerges from the lower level of existence and has its roots therein, but it emerges therefrom, and it does not belong to that lower level, but constitutes its possessor a new order of existence with its special laws of behaviour." The essential idea is that the properties, behaviours, or patterns of the complex system are not evident in the properties, behaviours, or patterns of their individual components, because the emergent properties arise from the interactions and organization of the parts. This idea has various implications, not least that the many academic fields all have their role in studying phenomena at the appropriate level, rather than seeking to reduce everything to physics as the "queen" of the sciences. Life cannot be understood, for instance, in terms of atomic particles, but needs to

be considered at a biochemical level. Even though biochemical dynamics supervene (i.e., rely for their existence) on the physical substrate of atomic and subatomic particles, they cannot be reduced to the action of such particles and must be analyzed on their own terms. Broad (1925) articulated this notion in the abstract—"the emergent theory asserts that there are certain wholes, composed say of constituents A, B and C in relation R to each other . . . [and] the characteristic properties of the whole cannot, even in theory, be deduced from the most complete knowledge of the properties of A, B and C in isolation or in other wholes which are not of the form R(A, B, C)."

Over subsequent decades, two major types of emergence have been identified. Under *weak* emergence, properties of the system emerge from micro-level rules and interactions, but although these properties are not easily predictable without simulation, there is no violation of physical laws or need for new fundamental principles. Under *strong* emergence, by contrast, higher-level properties are not reducible to or explainable in terms of lower-level laws, even in principle. This implies ontological novelty: new causal powers arise at the higher level. In the physical sciences, for instance, temperature is a weakly emergent statistical property of particles' motion, while in the natural sciences, bird formations are a weakly emergent property of bird behaviours in flight. Other phenomena by contrast are functionally treated as strongly emergent, meaning that scientists and theorists routinely model, explain, or predict them using higher-level properties that appear to have irreducible causal powers (even if a reductive account might exist in principle). Although superconductivity, for example, may be reducible in principle via quantum mechanics, the relevant collective behaviour is only intelligible at emergent levels. At critical points, such as water boiling or magnetization, systems undergo qualitative changes in behaviour (Anderson 1972). The functionally recognized strongly emergent properties arise near phase transitions, where microscopic details become irrelevant and macroscopic behaviour becomes insensitive to micro-level differences, obscuring reductionist paths (Goldenfeld 1992).

In the biological sciences, there is growing recognition that natural systems exhibit genuine multi-level organization, where higher levels exert causal influence not reducible to their components. The natural world is composed of hierarchical systems in which higher levels (e.g., ecosystems, societies) emerge from and constrain lower levels (e.g., genes, cells), often in unpredictable and irreducible ways (E. O. Wilson 1975, 1984, 1998). This higher-level functional autonomy constitutes strong emergence. Natural selection, for example, operates not just at the level of genes or individuals but also at the level of groups, making group-level traits evolutionarily causal and not reducible to individual-level fitness. Group-level properties, especially those that influence survival and reproduction, exist in ways not captured by individual-level traits alone. This understanding explicitly embraces strong emergence: the group becomes a system with its own dynamics, shaping individual behaviour and evolutionary trajectories (Wilson and Wilson 2007; D. S. Wilson 2015). Noble (2006, 2012) and Ellis (2005, 2012) thus argue that genes are not "blueprints" but components in a network of regulatory systems, where causality runs both upward and downward, meaning the system-level design has causal efficacy.

Beyond social groups per se, the social sciences describe a plethora of phenomena that are *produced* by groups which likewise exhibit functionally recognized strong emergence. For example, money has properties (e.g., store of value, medium of exchange) that do not exist at the level of individual agents and cannot be reduced to physical tokens (Searle 2010). Institutions like courts, parliaments, and corporations have causal powers, structures, and rules that cannot be reduced to the psychology or biology of individual members (Elder-Vass 2010). Languages emerge through usage by individuals but acquire structures (grammar, syntax, semantic rules) with causal influence on cognition and behaviour (Tomasello 2008). Social norms and moral rules constrain behaviour and structure societies

in ways not reducible to individual preferences or incentives (Bicchieri 2006). And so on. Most relevantly, some of the most compelling functional examples of strong emergence are provided by *CASs* specifically, as these systems are composed of many interacting components that self-organize, adapt to environments, and generate new system-level properties and behaviours, as we consider next.

3.2. Complex Adaptive Systems

Before we discuss CASs, it is important to understand complex systems more broadly (of which CASs are a special kind). A complex system is one composed of many interacting components whose collective behaviour is not predictable from the behaviour of the parts alone (Mitchell 2009). These systems exhibit the following:

- Extreme interdependence: Components of a complex system are highly interdependent, meaning the behaviour of each element is influenced by and contributes to the behaviour of others. System-level behaviour emerges from patterns of interaction, not just individual properties. Systemic risk in financial markets is an example, since the failure of one bank can propagate system-wide instability.
- Emergent behaviour: The system exhibits properties or behaviours that do not exist at the level of individual components, but arise from their interactions. Higher-level organization and functionality appear without central control. Traffic jams arising from individual driver decisions, even in the absence of accidents, are an example.
- Nonlinear and disequilibrium dynamics: Small changes can have disproportionately large or unexpected effects. Systems also typically operate far from equilibrium, in constantly changing or unstable states. Systems may evolve through bifurcations, chaotic behaviour, or sudden transitions. Weather systems are an example, since tiny changes in atmospheric conditions can drastically alter outcomes.
- Feedback loops: A change in a component of the system feeds back to influence that component, directly or indirectly. In climate systems, for example, melting ice reduces albedo, which accelerates warming—a positive feedback loop.
- Self-organization: The spontaneous emergence of structure, patterns, or behaviours in a system occurs without external control. For example, the flocking behaviour in birds takes place without central orchestration. Coordination arises from local interactions among agents, each following their own rules (Camazine et al. 2020). In ant colonies, for example, no single ant controls foraging patterns, but efficient trails emerge; on the Internet, information flows and adapts without a central router.
- Multiple basins of attraction and sensitivity to initial conditions: Complex systems can settle into multiple stable states. The outcome depends on initial conditions and perturbations, and systems can shift between radically different regimes, e.g., societies may stabilize as democracies or autocracies, depending on initial political events.

A complex *adaptive* system (CAS) is a special type of complex system that not only shows complex behaviour but also has the capacity to learn, adapt, and evolve in response to environmental feedback. The key additional properties of CAS, beyond complex systems, are the following:

- Adaptive agents: CASs are composed of agents (individuals, cells, firms, neurons, etc.) that can modify their behaviour based on internal rules and external interactions. These agents are heterogeneous and operate based on local information rather than global knowledge (Miller and Page 2007). In an economy, for example, firms adjust prices and strategies based on market demand.
- Learning and evolution: CASs are capable of learning (change in behaviour based on feedback or memory) and evolution (change in population structure over time through variation and selection). Learning and evolution employ mechanisms such as

reinforcement learning (adjust actions based on rewards or penalties), genetic algorithms (replicate with variation; fitter ones survive), and mutation and recombination (generate diversity in agent strategies or structures) (Mitchell 2009). For example, societies evolve norms, laws, and institutions in response to crises.

- Co-evolution: In CASs, agents and their environment evolve together in a process of mutual adaptation (Axelrod and Cohen 1999). The fitness landscape is dynamic: as agents adapt, the criteria for success also change (e.g., predator and prey populations evolve in response to each other; firms adapt to consumer needs while shaping them).
- Proximate versus ultimate causation: In CASs, especially in biological and social CASs, behaviours must be understood at multiple causal levels (Wilson and Wilson 2007). Proximate explanations reveal mechanisms (e.g., hormone release, decision rules), while ultimate explanations reveal evolutionary rationales (e.g., survival of ideas).
- Multi-level selection: In CASs such as human societies or ecosystems, selection operates not only at the level of individuals, but also at the level of groups and populations (D. S. Wilson 2002; Wilson and Wilson 2007; Wilson and Snower 2024). Groups that foster cooperation can outcompete more selfish groups (e.g., altruistic ants thrive because colonies with cooperative workers outcompete those without).

To understand why many social systems fail to organize effectively and why W/F may have differences at the individual and group levels, it is important to distinguish between two types of CASs.

3.3. CAS1 Versus CAS2

There are two main types of CAS: a CAS1 is, by definition, coherent and adaptive as a system, whereas a CAS2 is composed of individual agents following their respective adaptive strategies (D. S. Wilson 2016; Wilson and Madhavan 2020). Essentially, by *default*, a human being is a CAS1 and a social group is a CAS2. There are some instances in which these designations can change: under special circumstances, as considered below, a group might be so thoroughly integrated and tightly bound that it becomes more like a CAS1, acting as a "single" entity. Moreover, the distinction between a CAS1 and CAS2 is actually not always clear cut, and rests on degrees of integration, selection, and functional alignment. But for the sake of advancing the discussion here, unless otherwise specified, let us simply stipulate that an individual person is a CAS1 and a social group is a CAS2.

Thus, a healthy human being can be understood as a CAS1: a CAS in which many interacting components cooperate reliably to sustain the individual's survival, functioning, and agency. The term "healthy" is an important but contested qualifier, which perhaps also admits gradations by degrees. One could suggest that the less healthy a person, the less well their body functions as an effective CAS1, to the extreme where a body that is no longer alive is no longer a CAS1. Generally speaking though, individual humans, even ones who are relatively unhealthy, can by default be considered a CAS1. The human body is a functionally integrated system, satisfying the conditions for a CAS1 in the sense that it comprises a collection of agents whose interactions produce system-level organization and whose selection pressures align individual parts with the system's function as a whole (D. S. Wilson 2019). The body's organs, tissues, and cells are differentiated and functionally specialized, yet work coherently to maintain the integrity and adaptability of the whole organism. Components of the body are maintained by homeostatic mechanisms (e.g., temperature regulation, immune responses). Top-down regulation from the nervous and endocrine systems coordinates bottom-up processes. Cooperation among the components of the body is genetically encoded and developmentally canalized (e.g., the heart does not have its "own" interests but serves the organism). Serious malfunctions are the exception, not the rule, and often lead to system breakdown or targeted immune responses. In short,

the healthy body exhibits strong integration, coordination, and aligned selection, fulfilling the CAS1 criteria (Noble 2006, 2012; Ellis 2005, 2012), and even relatively unhealthy bodies still effectively function as a CAS1, oriented around and defined by the primary goal of keeping the person alive.

By contrast, human social groups, while also complex and adaptive, do not inherently or even usually possess the integrated functional unity required to qualify as a CAS1, so arguably, by default, constitute a CAS2. We say "by default" since in special circumstances a group might indeed attain sufficient coherence and integration—even if only temporarily—to constitute a CAS1, acting "as one," as if a singular entity like a human being, as we consider shortly. We also refer specifically to *human* social groups here, since for some other animals, such is the relative simplicity and narrowness of their functioning that a group does tend to act as a CAS1. The behaviours of creatures such as ants or bees, for example, are relatively tightly constrained by biological "programming," such that an ant colony or beehive can by default be regarded as a CAS1. But one of the outstanding features that makes humans distinctive from other animals is the great flexibility of their social functionality (Snower and Wilson 2025). Humans possess cognitive flexibility and cultural plasticity, allowing them to act as independent individuals, members of overlapping groups (e.g., family, workplace, nation), and agents within symbolic, virtual, or ideologically defined collectives. Humans can join and leave groups, switch roles, or alter loyalties based on context, incentives, and identity. Social identities are thus constructed, nested, and modifiable, unlike the more fixed biologically-driven social roles of ants or bees.

As such, by default, a human social group tends to be of the CAS2 type. CAS2s involve nested layers of agency, cognition, and adaptation. The agents can plan, deceive, anticipate, and manipulate the system as they each pursue their own adaptive strategy (as a CAS1). In general, CAS2s do not automatically or even often self-organize into CAS1, for a variety of reasons. First, in a CAS2, within-system competition among CAS1 agents (e.g., individual actors within the group) may undermine system-level coherence. In other words, self-interest at the lower personal level can disrupt collective benefits at the higher societal level (D. S. Wilson 2019). For example, individuals (CAS1) might pursue personal gain (e.g., corruption), undermining the functioning of the wider society (CAS2). Second, CAS2s generally lack natural selection mechanisms that automatically remove dysfunctional actors or behaviours. Without deliberate correction, maladaptive structures (like extractive institutions) can persist (Ostrom 1990). Third, CAS1 agents (e.g., individuals) are strategic, reflective, and often manipulative. They may game the system, avoid regulation, or subvert collective goals. This can hinder the emergent self-organized whole from achieving cooperative equilibrium.

However, under special circumstances, it is possible for human social groups to at least move *towards* being a CAS1. However, this usually requires conscious collective efforts and emergent intentional governance mechanisms to align individual and collective interests, including rules, monitoring, sanctions, and feedback loops (as in Ostrom's core design principles). These mechanisms do not arise spontaneously but must be deliberately designed and maintained by individuals in the system (Wilson et al. 2013). Such mechanisms still constitute forms of emergence, but ones that do not happen "accidently" but rather only through the active efforts of the component members. That is, human societies (which are CAS2 by default) do not self-organize into adaptive wholes (CAS1-like behaviour) without *intentional* efforts to align incentives, establish shared norms, monitor behaviour, and build adaptive institutions. Without such efforts, individuals in groups often act in self-interested or strategically opportunistic ways. There is no "invisible hand" whereby self-interested agents can necessarily achieve an efficient and equitable allocation of resources or distribution of goods and services. Social systems require deliberate design to approximate the

integration found in biological CAS1 systems (Wilson et al. 2013). Without such design, groups are prone to free-riding, fragmentation, or exploitation, and hence are liable to remaining in their default status as a CAS2. Thus, only under special conditions will a group self-organize into an adaptive whole, thereby developing CAS1-like behaviour.

A final point to note is that the world does not simply comprise individuals (CAS1s) and groups (CAS2s by default), but rather a dizzyingly complex nested hierarchy involving CASs of different scales. For any given CAS (which we could refer to as CAS^{x}), there is a yet broader CAS which encompasses it (i.e., a CAS^{x+1}), and which constitutes the context for the lower-level CAS. So, if an individual human is the CAS^{x} in question, a larger CAS^{x+1}, such as the person's family, constitutes part of that person's wider context. But if the CAS^{x} in question is the family, a larger CAS^{x+1} is the wider community in which the family lives, which is part of the context for that family. However, if the community is the CAS^{x} in question, then the context is whatever larger context that community is embedded within, including a CAS^{x+1} like the nation state, and so on. With that said though, we reiterate that an individual human being is very different from a social CAS (of any scale), for the reasons outlined above. As such, here we mainly refer to and focus on the distinction between individuals (i.e., CAS1s) and groups (i.e., CAS2s by default).

4. Qualities of Flourishing Groups

Having argued that individual human beings and social groups both constitute CASs, albeit of different kinds, we now explore whether social groups can be said to experience their *own* forms of W/F (beyond merely the aggregate W/F of their individual members). To appreciate the difference that this shift in emphasis to an emergent form of Group-W/F would entail, let us adapt VanderWeele's standard definition of flourishing, which usually concerns the individual human—"the relative attainment of a state in which all aspects of a person's life are good, including the contexts in which that person lives"—in terms of CASs, where a CAS is the operative entity. Thus, it becomes "The relative attainment of a state in which all aspects of a CAS's life are good, including the contexts in which that CAS exists." This perspective goes beyond social wellbeing as the aggregation of the wellbeing of its individual members; rather, the group is an emergent entity, a gestalt with its own qualities that, while dependent upon its constituent members, cannot be *reduced* to these.

Such Group-W/F will typically, if not uniformly, consist of "common goods," understood as goods which can only be pursued and enjoyed by the group *qua* group (or *qua* CAS2), and which supervene on or emerge from the variegated but unified actions of its individual members (Scruton 1989; Wolterstorff 2012). For instance, a central element of an orchestra's flourishing is the excellent performance of a symphony, just as a key feature of a football team's flourishing is excellence in competition with other teams (ideally but not constitutively including victory in those competitions). But the orchestral performance of a symphony is not an aggregation of many individual symphonies, nor is a football team's victory the aggregation of many individual victories; rather, the appropriate functional integration of the individual performers or players counts as the performance or the victorious game, which is thus a good enjoyed in common by the group's members, or not at all.

On this view, a social CAS could indeed be said to experience W/F, even if the form this takes is not equivalent to the W/F of the members who make up the group. Here, we thus explore potential qualities of *group*-level W/F, drawing on work like Snower's SAGE framework and VanderWeele's (2019) community wellbeing paper, together with other relevant literature. We briefly consider five main qualities that are particularly prominent in such scholarship: group-level fitness; promotion of member W/F; morals and character; solidarity and relationships; and communication. This list is not exhaustive though, and others no doubt can be identified; indeed, we hope this paper provides the foundation and

impetus for such a research program to fully explore and develop our understanding of Group-W/F.

4.1. Group-Level Fitness

Group-W/F might be firstly conceptualized as simply the capacity of a group to function effectively *as* a CAS—including merely as a CAS2, but ideally as a CAS1—within its broader ecological, political, social, and economic context. In this framework, a group is not merely a collection of individuals but a dynamic, interconnected network of agents (individuals or subgroups) whose interactions generate emergent properties not reducible to individual actions alone (Miller and Page 2007). A group functions well as a CAS—across both CAS1 and CAS2 types—when it exhibits key systemic properties such as (1) resilience, i.e., the ability to absorb shocks and maintain core functions amid external or internal disruptions (Walker et al. 2004); (2) adaptability, i.e., the capacity to learn from feedback, reconfigure internal processes, and respond flexibly to changes in the environment (Folke et al. 2005); (3) coherence, i.e., the presence of coordination mechanisms—norms, institutions, or communication structures—that maintain internal alignment and promote cooperation (Ostrom 1990); and (4) distributed sensemaking, i.e., the group's collective ability to interpret complex environments and make decisions under uncertainty (Klein et al. 2006). Group-W/F, then, involves how well the group sustains its internal coherence, resolves conflicts, allocates resources, and pursues shared goals while interacting with broader systemic constraints and opportunities. A group's W/F is not simply the aggregate of individual satisfactions but the functionality and adaptability of the group within evolving multi-level systems (Cilliers 1998).

From an evolutionary perspective, Group-W/F can be evaluated in terms of the group's fitness—its ability to survive, reproduce, and transmit beneficial adaptations over time through the core processes of variation, selection, and transmission (Wilson and Wilson 2007). Variation denotes the way a well-functioning group generates behavioural and institutional diversity through experimentation, innovation, or cultural mutation. This diversity enables the group to explore a broader adaptive landscape (Campbell 1965). Selection refers to the way the group is exposed to selection pressures from its external environment (e.g., competition with other groups, resource scarcity, political upheaval). Groups that fail to adapt face decline or extinction, while successful groups reproduce their structures or norms (Henrich 2004). Transmission pertains to group wellbeing also being determined by the fidelity and effectiveness of transmission mechanisms—such as teaching, storytelling, rituals, institutions, or media—that pass adaptive practices across generations and members (Tomasello 1999). Groups that thrive over time tend to exhibit multi-level selection advantages: cooperation and altruism within the group are favoured when competition occurs primarily between groups rather than within them (Wilson and Sober 1994). This means that group-level traits that suppress selfishness and promote collective coordination—such as trust, social norms, and fairness—are selected for at the group level, even if they are costly to individuals (Bowles and Gintis 2011). In sum, group wellbeing in evolutionary terms is defined by a group's long-term viability and adaptability within competitive and cooperative intergroup ecologies, while in complex systems terms, it is measured by the group's resilience, coherence, and adaptability in dynamic contexts.

Moreover, groups with high W/F are not merely CAS2s, but move towards the holistic coherence of a CAS1. When individuals act in their own self-interest, they tend to produce a CAS2, whose W/F tends to be lower than a CAS1. A CAS2 outcome is especially likely to arise when the individual's self-interest is not merely orthogonal or irrelevant to the group's interest, but is actively antithetical to it (i.e., it harms the group). A person with a self-interested hobby of passively admiring flowers in the neighbourhood is not

necessarily either helping or harming the community's W/F, but someone vandalizing those same flowers is certainly harming it. A CAS2, where individual agents pursue their own self-interest with disregard for the group, is vulnerable to the following: coordination failures (agents may work at cross-purposes, producing systemic inefficiencies or conflicts; Olson 1965); externalities and collective action problems (individually rational actions may produce negative consequences for others, undermining group outcomes); and suboptimal equilibria (the system may settle in states that are individually stable but globally inefficient, such as social traps, congestion, inequity; Scheffer et al. 2001).

By contrast, in a CAS1, the group as a whole is the unit of adaptation. This is achieved when agents coordinate their actions through norms, institutions, or shared identities, enabling the following outcomes. First, resilience and adaptability: CAS1s are more resilient because adaptation occurs not just at the level of individuals but at the level of system structure and feedback loops (Folke et al. 2005); in a CAS2, by contrast, individuals may resist systemic changes that would benefit the group if those changes impose short-term costs on them. Second, solidarity and collective agency: CAS1s promote solidarity and collective agency—two key enablers of flourishing in the SAGE framework, considered further below, whereas CAS2s often inhibit solidarity through competition, fragmentation, and mistrust (Putnam 2000). Third, evolutionary fitness at the group level: per multi-level selection theory, groups that constrain within-group competition and conflict and enhance between-group cooperation are more likely to survive and thrive (Wilson and Wilson 2007). It is not that internal competition cannot be generative, but ultimately it must ideally be in service of the group as a whole. A business where different teams compete to generate the best idea may well thrive, but only if those teams are ultimately concerned with the entire business doing well rather than their own specific unit. CAS1-type groups, which function like cohesive adaptive units, are therefore evolutionarily more successful than CAS2 groups composed of competing individuals. Fourth, moral and purposeful flourishing: in terms of VanderWeele's domains of character/virtue and meaning/purpose, these are fostered in CAS1 systems, where individuals act in service of shared goals, as we consider further shortly, whereas in a CAS2, self-interest often erodes these moral foundations. For these reasons, CAS1 group systems tend to have more efficient resource allocation, resilient collective action, reduced conflict and inequality, and promotion of prosocial values and shared purpose.

4.2. Promotion of Member Wellbeing

Groups that thrive are also those that promote the W/F of its members. This paper is focused on Group-W/F, but this is thoroughly intertwined with the W/F of those who constitute the group. This is partly what inspires their loyalty to the group and their motivation to help the group prosper. Thus, a good group provides its members with important ingredients of their own wellbeing, including the following: belonging and identity, enhancing social identity wellbeing (Tajfel and Turner 1979); supportive relationships, forming caring wellbeing (Kahn and Antonucci 1980); and shared goals and purpose, creating collective eudaimonic wellbeing (Lambert et al. 2013). A flourishing group also promotes the essential ingredients of *individual* W/F, such as freedom and autonomy, hence engendering Agency in the SAGE framework. Evolutionarily, agency reflects the development of executive function, symbolic reasoning, and intentional action—key traits that enabled humans to adapt to changing environments, develop tools, and engage in forward planning (Tomasello 2014; Henrich 2016). As a constitutive good, agency is also a central theme in the capability approach, which views the freedom to choose and act as fundamental to wellbeing (Sen 1999; Nussbaum 2011). The protection of such individual aspects of W/F are a key component of truly flourishing groups. It is possible

for social groups that do not promote such goods to function effectively for a time, and perhaps even to take on qualities that might seem to be reflective of a CAS1. The rigid conformity and control seen in totalitarian societies might give the appearance of a system that is operating as one coherent "entity." However, by severely undermining people's individual W/F, such systems are inherently fragile and unstable, as they do not command any genuine loyalty or enthusiasm from most of its members, but need to instead try to engineer and maintain these by top-down coercion and control.

Consider, for example, the domains of VanderWeele's (2017) flourishing framework. As discussed above in relation to his notion of community wellbeing, a thriving group will have its own analogues of these domains: happiness translates into a satisfying community, health into healthy structures and practices, meaning/purpose into common mission, character/virtue into proficient leadership, and close social relationships into good relationships throughout the community. Some of these analogues have already been considered in the section above regarding group-level fitness (such as healthy structures and practices), and others are explored further below, such as character/virtue and relationships. But here we would emphasize the point that a flourishing group is also one that provides these goods to its individual members. For example, close social relationships are fostered through group solidarity and mutual trust; meaning and purpose are derived through shared narratives, identities, and goals; character and virtue are cultivated through social norms and moral exemplars embedded in group practices. Crucially, many of these outcomes depend not on isolated personal achievement but on being situated within healthy social, political, and ecological systems—making Group-W/F a core determinant of *individual* W/F. Members' identities, values, and W/F more broadly are co-constituted by the group's flourishing. Identity is co-authored through shared narratives and group symbols. Agency is distributed through group decision-making and institutional capacities. Virtue is relational and performed within moral communities. Suffering and meaning are shared in collective rituals, mourning, and celebration. W/F is co-produced: individuals contribute to and draw from their group's health, coherence, and adaptability. As a result, when the group thrives, so does its members. Thus, Group-W/F is not a by-product of individual success but is a systemic, evolutionarily grounded condition that supports and constitutes the flourishing of its members. These groups provide the relational, material, political, and ecological contexts in which human lives can meaningfully unfold.

4.3. System Morals/Character

Beyond facilitating W/F in its members, flourishing groups are also characterized by their own forms of W/F. Seen through the prism of VanderWeele's flourishing framework, for example, his five main domains, which are usually understood as pertaining to individuals, have analogues at a group level, as raised above. Character and virtue, for example, are one domain of his model, and scholars have also given thought to the potential for these to be emergent features of social groups. As a way into this topic, let us stipulate that an individual possesses a good moral character if and only if that person both has true beliefs about the good (its own, others,' and perhaps "the Good" in some still more abstract sense) and is reliably disposed to deliberately act on those beliefs in appropriate circumstances (cf. Miller 2013). We thus assess moral character both by testing for true beliefs about the good, and for assessing dispositions to act, typically by way of further assessing actual deliberate actions.

Questions about a community's moral character similarly implicate questions about its capacities for forming the relevant kinds of beliefs and dispositions to act in relation to the good. Importantly, some communities, including many businesses and governments, arguably do possess forms of rational and responsible agency which, while supervening on

or emerging from the agency of their members, are irreducible to the agency of any or all of their members. The Western philosophical tradition has typically treated such communities under the rubric of "corporate persons" (cf. Scruton 2009; Wolterstorff 2012; Case 2021). For instance, as Wolterstorff observes, "A member of the United States Congress cannot declare war; only the state can do that. A majority of the members of Congress voting for a declaration of war counts as the United States government's declaration of war" (p. 56). Note here that the actions of the individual members are quite different from the actions of the corporate person: just as a face is not composed of many smaller faces, so too a declaration of war is not the aggregate of many individual declarations of war, but rather supervenes on an aggregate of votes. As Scruton (2009) notes, the intuition that underlies the legal recognition of corporate personhood is that, "wherever there is agency, there is also liability" (p. 33). Corporate persons can not only act, but can act well or badly, justly or unjustly, and this moral standing is no more an aggregate of its members' moral standings than its actions being aggregates of their actions. For instance, a country that prosecutes an unjust war might rightly owe reparations to its victims, even if the citizens who are taxed to pay the reparations, perhaps a generation or more later, played no direct role in the war itself. For a particularly clear instance of this view about the guilt of a corporate person put into action, we might consider the German judiciary's judgement that the only fitting fate for the barbarity of the Nazi Party following the Second World War was, in Scruton's (1989) striking phrase, "judicial execution" (p. 249).

4.4. System Solidarity/Relationships

Social relations are an important factor in an individual's flourishing—hence being one domain of VanderWeele's framework—but social groups can themselves manifest forms of relational flourishing that go beyond the mere sum of the individuals' interpersonal connections. These system-level social relations are often referred to as solidarity or social cohesion, which are emergent properties that shape both the group's internal dynamics and its capacity to thrive as a collective entity, hence the inclusion of Solidarity as one pillar of the SAGE framework. From an evolutionary standpoint, solidarity is critical for large-scale cooperation, alliance-building, and social resilience (Bowles and Gintis 2011). These capacities enabled early human groups to thrive through mutual aid, cultural transmission, and cooperative defence. In contemporary contexts, solidarity remains essential for psychological integration and relational wellbeing, contributing directly to the development of trust, empathy, and moral community (White 2017). An early influential theorist of solidarity was Durkheim (1933), who proposed two primary forms: "mechanical" and "organic." In the former, shared similarities and collective consciousness operate as givens in a relatively homogenous group and function to hold society together. In the latter, solidarity emerges from interdependence and complementary differences, forming cooperation within a system characterized by division of labour. From a CAS perspective, both forms can contribute to group flourishing, though they operate via different mechanisms. Mechanical solidarity creates cohesion through shared values, rituals, and identity markers that bind members together, while organic solidarity generates resilience through diverse but interconnected roles and capabilities.

In recent decades, much of what Durkheim and others were formulating through the category of "social solidarity" has been reconceived through the category of "social capital." It is through this latter category that recent research has begun to consider ways in which social capital can adhere not just to individuals but to groups. Social capital refers to a value that is embedded in social relations, including the norms of reciprocity and trustworthiness, and is often distinguished between "bonding" and "building" social capital (Putnam 2000). Bonding social capital is characterized by connections between people who share similar

traits (class, ethnicity, kinship ties), while bridging social capital occurs when connections are made between people who are different in those kind of ways. One analysis of the way individual civic engagement can lead to a greater community collective efficiency, for example, found that bonding social capital acted as a "bridge" between individual participation and group capacity (Collins et al. 2014). By individuals participating in the civic activity, they build bonding social capital by strengthening their relationships within the group, and this leads to a higher collective efficiency as a group. This would suggest the group's ability to act collectively—and thus relate as a group to other groups—emerges over time as individual engagement first strengthens internal relationships and then slowly transforms the group into a unit of collective action. Other forms of social capital have also been proposed, such as "brokering" capital, which identifies those members of groups that take on the communicative burden between communities (Fulton and Wood 2026).

The dynamics of group relationships can of course be complicated. There can be a tension, for instance, if introducing greater heterogeneity into a group: more homogeneous communities tend to have higher bonding capital, leading to thicker relations between the individual members (Putnam 2007), while more heterogeneous communities tend to have lower levels of bonding capital, leading to thinner relationships between the individual members (Alesina and La Ferrara 2000). Historical analysis has shown this dynamic is replicated in small versus large religious groups: small groups tend to have higher bonding capital and larger ones lower levels (Teubner 2025). On the other hand though, larger groups may have other advantages, such as greater innovation and adaptation (Sorenson 2023). There are thus possible trade-offs at the level of the group between larger, more heterogeneous groups that potentially drive innovation and adaptation, and smaller, more homogeneous groups that cultivate strong and supporting bonds.

One solution to this tension is that larger groups become a community of communities, but this only intensifies the need for group-level identification. In most communities of any size, an individual will belong to multiple communities, which further necessitate mechanisms for group-to-group interaction. When considering the issue of system solidarity, it is important to keep in mind that it is an emergent property of the group, so it cannot be completely separated from the individual relationships, even if it cannot be reduced to those relationships. Assessments of system solidarity would thus need to not only assess whether groups were relating positively, but also whether, within the sub-communities of a larger community of communities, the social relations are relatively easy to form. It is also important to ensure that the formation of such relationships does not erase the differences between groups, nor between their members; assuring this outcome will help the group as a whole to relate socially to other groups without requiring strong ideological or social convergence between or within such groups, even if there would need to be some common traits, beliefs, and practices to hold the groups together as a collective entity.

4.5. System Communication

Finally, good communication is a crucial property of group CASs, especially those that rise to the level of a CAS1. Groups exist for a myriad of reasons—including spatial proximity, political decisions that declare a heterogenous group part of a territory/state, and voluntary association—and sometimes form to serve a specific shared goal, where the flourishing of such a group is at least partially related to this *telos* (ultimate aim). In that regard, effective system communication is often essential for this *telos* being successfully achieved. Consider for example the inter-organizational network of federal government agencies, private industry subcontractors, and political actors that contributed to constructing, launching, and landing space shuttles. This CAS was organized for several interrelated reasons, such as carrying out specific missions in space, ensuring the safety of astronauts

and reusability of equipment (including the shuttles themselves), and securing the ongoing support of the tax-paying public via cost-effective attainment of socially valuable work. The flourishing—and indeed, continued existence—of the system was partly dependent on successful and safe missions. Too many costly or fatal mishaps could cause delays in funding or the closing of the entire program. When this CAS flourished, financial and material resources were provided, members celebrated the accomplishment of socially important goals, and the broader context conferred legitimacy (even if there were also critics of the program).

But for complex, emergent reasons, organizational and political pressures contributed to mishaps, such as the destruction of the Space Shutte Challenger and associated astronaut deaths that adversely impacted many people and the flourishing of the system as a whole (Vaughan 1996). The program ultimately ended in 2011 due to safety issues, high costs, and an inability to meet its stated goals. Inter- and intra-organizational communication problems contributed to the Challenger disaster. One such problem has been termed *structural secrecy*: obstructions in the flow of information in large, hierarchically arranged groups, organizations, and networks. Groups with low power might regularly engage in self-censorship out of fear, and contribute to obstructed information, but more prosaic features of organizational structures (e.g., misaligned reporting processes) can also cause critical information to be diverted from key decision makers. Such obstructed communication seems to have been a component of the space shuttle CAS that contributed to the Challenger tragedy, which shocked the public and threatened the legitimacy of the entire system.

This example shows how communication processes can shape whether or not a CAS flourishes. All such systems can be characterized by one or more of four fields of conversation (Scharmer 2009). The first is "talking nice": a CAS tends to invite contributions by only some members who engage mostly in monologues which are endured by others who may be reluctant to speak at all. This is not a robust form of communication and information will be lost due to of self-censorship. If this dominates, systems will appear stable—and uneasy politeness might prevail—but they are often moving in the direction of rupture. When a rupture happens, communication will be characterized by the conflict and emotional outbursts that appear in the second field: "talking tough." This is the rejection of monologue by those who have been excluded and often take the form of fractious debate. This can be an unpleasant experience for all, but as information is shared by those who have been silent, there are greater possibilities for flourishing built on more complete communication. Debate is therefore more conducive to flourishing than monologue. At this point it is helpful if groups can experience a third field: "reflective inquiry." This marks the emergence of dialogue (although monologue and debate might still coexist) as members become empathetic and curious about each other's perspectives. Capacities that support flourishing, such as care and support, emerge more frequently, and the system as a whole may begin to flourish more: to attract more members, to encourage greater engagement, and to connect in mutually beneficial ways with other systems.

Finally, the fourth field of "generative dialogue" might emerge as a hallmark of truly flourishing systems. This is characterized by shared understandings, openness to new ways of relating, co-creation, and unanticipated possibilities for transforming unhealthy system-wide dynamics. This dialogue is "generative" because new understandings emerge that transcend the ability of any single group member to surface them alone. They are generated by the quality of dialogue that is created by a new, collective, sensemaking context that appears in the system after working through the other fields of conversation. A preponderance of monologue or debate does not mean systems cannot accomplish valued goals. But the vitality and creativity of such systems will be lower compared to

systems that promote the latter two forms of dialogue, especially generative dialogue. It seems that the CAS that produced the Challenger disaster had elements of all four fields, but some accounts suggest that monologue and debate were perhaps more evident at critical junctures in the decision process (Vaughan 1996). When combined with structural secrecy, an emphasis on talking nice or talking tough in a CAS might contribute to ill-informed decisions or missed opportunities for exceptional performance that adversely affect prospects for the flourishing of the system. Groups can take intentional steps towards creating the conditions that support reflective and generative forms of dialogue in the service of greater flourishing for individuals, groups, systems, and networks of systems. But some outcomes of generative dialogue, by definition, are emergent rather than chosen, so a level of unpredictability remains. Systems can also move back into monologue and debate, but we hypothesize that systems that can sustain more generative dialogue will flourish at a higher level, and indeed the presence of generative dialogue itself might serve as a marker of flourishing systems.

5. Conclusions

This paper has argued that qualities of W/F can be meaningfully applied to the social group, not merely as an aggregation of the W/F of its members, but on its own terms as an emergent entity. We began by introducing the ideas of wellbeing and flourishing, but noted that although these have been defined in myriad ways, these varied conceptualizations usually just apply to individual humans, not to groups (other than as the sum of the W/F of their individual members). However, at least *some* scholarship has explored whether groups can experience their own forms of W/F, which we built upon here, doing so by drawing on the idea that both individuals and groups constitute CASs, albeit different kinds. Following that, we argued that qualities of W/F can be applied to the social group, even if there are meaningful differences compared to the ways these outcomes tend to be construed for individuals. In particular, we considered five broad qualities that are particularly prominent in the literature on Group-W/F: group-level fitness; promotion of member W/F; morals and character; solidarity and relationships; and communication. However, this list is not exhaustive, and other qualities no doubt can be identified. To that very point, we hope this paper provides the foundation and impetus for just such a research program that can fully explore and develop our understanding of such ideas.

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