

Author's Response

A society as a clearly membered, enduring, territory-holding group

Mark W. Moffett* 

National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

MoffettMW@si.edu

*Corresponding author.

doi:10.1017/S0140525X25000019, e76

Abstract

I have attempted to provide a concept of societies that will foster productive cross-disciplinary discussions, namely one incorporating these three elements: (1) A mechanism for group identification, by which members distinguish those who belong from those who do not; (2) the potential for this membership to last for generations; and (3) control over a shared physical space. Herein, I respond to thoughtful commentaries from academics across the social and biological sciences, addressing their insights on the importance of identity in determining society boundaries, how institutions and nations relate to identity, the complications of territoriality as a definition component, how societies fragment, the workings of multitier sociality, and the significance of cooperation.

R1. Introduction

I have presented what I hope is a broadly constructive concept for the term “society,” one that does not specify some diffuse sense of sociality but rather a group entity, or unit, of a particular kind. While it has become obvious to me that the word “society” has considerable cachet, such that there can be pushback when the option to adopt it for a favored purpose is cast in doubt, the fact is that the term has such a wide range of usages that academics can employ it virtually however they wish provided their intent is made clear. My interest is in the concept, not semantics; it just so happens that the most suitable word for describing that concept in English is a “society.” Still, as I wrote in the introduction of the target article, the present interpretation of a society is sufficiently widespread, and consequential, that it is unfortunate no separate word for it exists; and I encourage the perspective it offers as a promising source of productive interdisciplinary dialogue. The subject of territorial control sparked the most debate, including its possible inapplicability to pelagic species, and hence as I anticipated this criterion might be expendable for some purposes.

Objections to my approach on two other fronts run deep enough to warrant preliminary mention. To be clear, the exclusion from the proposed definition of cooperation and the broader picture of multitier organization in no way implies those features are inconsequential; what I don't see is how using either as criteria for *defining* a society brings any improvement in clarity. To the contrary, I reasoned in section 1 that the definition is all the stronger for leaving such matters out, in the interest of achieving “a

neutral framework for addressing big questions around why societies exist,” among those questions being the role of cooperation and how societies fit into multilevel systems.

Creating that “neutral framework” was my singular goal as I developed my definition. **Smaldino** sees my concept of society as lacking “any special explanatory or predictive power,” a concern **Blute** likewise brings to the fore. Exactly. As stated in my introduction, “It is not the job of a definition to explain the phenomenon it names.” Adequate conceptualization is a precondition of satisfactory explanation, and, in fact, prediction as well. By rigorously eschewing preconceived notions of function, the definition is intended to leave others the space to explain and predict. I include among the “big questions” to be addressed working out the psychological mechanisms underlying member identification (**Krupenye, Carvajal, & Bastos [Krupenye et al.]**); building “a functional theory of how societies and individuals influence one another” (**Smaldino**); and, in a compelling example proposed by **Mitkidis**, fashioning a comprehensive analysis of deception.

Some of the biggest questions concern the benefits of societies. I chose to avoid making this subject a theme of the target article, but in brief I see the advantages of society life as broadly categorizable with respect to how the members provide for, or protect, one another, as well as share information and pool their talents, to the extent that the success derived from being in a society can outweigh the potential competition among its members (Moffett, 2019, p. 29). How those members fare better as constituents of societies than they would have done on their own or as part of more transient groups will be a rich area for future discussion.

Many pressing enigmas about societies come to mind with respect to their evolution, as **Blute** astutely anticipates. One of my passionate interests is in how humans initially evolved to employ traits to recognize their societal identity. In Moffett (2019) I hypothesized that a likely route was through the emergence of a *group coordination signal* conveyed to mobilize members in response to other societies (e.g., for bats, Boughman & Wilkinson, 1998). Perhaps our predecessors transformed such a signal into a password denoting membership (as **Barry, Hagen, & Mehr [Barry et al.]** would predict, almost certainly a vocalization) that individuals gave as an assurance on approaching their fellows (Fitch, 2000; Moffett, 2013, p. 238). Such a socially learned trait could be modified by the members of each society to be distinct (something chimpanzees fail to do, contrary to what was once thought: Desai et al., 2022). I argued in Moffett (2019) that the first signals of group identity could have been adopted at little cognitive cost, without affecting ingroup–outgroup boundaries or, at least initially, the social dynamics of societies that had originally depended on the residents' ability to recognize one another as individuals, thereby (to follow my terminology in the target article) transforming an “individual recognition society” into an “anonymous society” in which individuals detect “markers of identity” to register who belongs. **Brewer & Caporael** describe these as “group configurations” (“demes” and “macrodemes,” respectively; see below) that are noninterchangeable, but transitions between them could be simple.

What of other approaches to defining the concept of “a society”? **Smaldino** details characteristics of societies in a list it seems could be extended indefinitely; yet a definition is different from a broad-scale description, in that it allows us to understand what is included under a term without comprehensively inventorying its attributes (although a thorough discussion of a definition such as that undertaken in the target article or scholarly

dictionaries can proffer an encyclopedic analysis of the conceptual underpinnings of the subject being defined). Moreover, ideally a definition will succinctly distinguish not just Xs from non-Xs but, in cases where X is a discrete entity, one X from any other. Indeed, I treat societies much like other “biological individuals,” that is, as well delineated and “countable” (e.g., Godfrey-Smith, 2009).¹ Which is to say a definition of “society” that hinges on identity, and the acceptance or rejection of others as members, illuminates how observers may usefully distinguish one society from another. None of the traits Smaldino brings up (e.g., population sizes, inequalities, electoral policies) can serve to set societies apart. Nor does applying all his characteristics in combination improve clarity: This would provide not so much a definition applicable to any and all societies as a treatise on the diversity of human sociality. I foresee a similar problem with the preference of **Cerbone & Turilli** for defining “society” as “the kind of thing that does ‘x, y, z.’” **Szocik** narrows the focus to inequities (here, between genders), yet studying such widely variable biases, and such important components of societies as their internal social structure, presumes we can identify empirically those “societies” and who actually is *in* them. **Lei & Gong** associate societies with complexity, but one interesting feature of societies is how they vary from simple to labyrinthine; for instance, **Bergman and Beehner (2015)**, whom these authors cite as promoting “the opposite... definition of society” from mine, in point of fact give a rundown of species showing a tremendous range of social complexity across all kinds of weak to strong associations without singling out which of those groups they see as “societies.”

In addressing the commentaries, the relevant section of the target article was given in parentheses.

R2. Identity

I am pursuing the suitability of defining “a society” based on membership with regard to an enduring, territory-holding group. **Grueter & Swedell** see me as describing the capacity for individual recognition as integral to “perceiv[ing] one another as belonging together”; but the alternative of displaying identity markers, and detecting them in others, serves equally well (if not better, since it is less cognitively demanding, as evidenced by the high-functioning societies of tiny-brained ants). Further, it is possible to recognize individual foreigners, even coordinate with them, yet categorize them as foreign (i.e., as members of other societies): “The fact is human minds have likely evolved to respond to strangers and foreigners differently, and foreign strangers most strongly of all,” such that even when society members don’t personally recognize one another, “markers of identity make the stranger seem less strange” (Moffett, 2019, p. 171). (Beyond that, of course, humans, among other species, can pick out groups other than societies [see examples from multitier sociality: [sect. R7](#)].)

According to many philosophers, calling any set of individuals a “group” would be sufficient to fulfill my first criterion for a society, namely of having a mechanism for group identification, in that “the difference between a set of individuals and a group is that the individuals recognize themselves as belonging to the group” (Noyes & Dunham, 2020, p. 105). Mere categorization by the members, say through extended direct association, could fulfill that criterion. Yet social psychologists ever since **Tajfel** have assumed that “minimal groups” require some commonality to maintain a group identity, even if it is trivial, and even when (in experimental situations) the members have never met before

(the ultimate anonymous situation: all are strangers to each other). On this basis it seems that **Brewer & Caporael** would apply the phrase “identity group” only to societies whose members are bonded by “experiencing” markers of group identity (rituals, symbolic displays, etc.). Contrary to this view, in section 3.4 I proposed that individual recognition societies are just as much identity groups as the anonymous societies found in humans and certain other vertebrates, in that they “depend on the members’ ability to keep track of every other member as a unique individual.” This group identification involving no shared traits, which I designate a “mere acceptance group,” could have been modified, and reinforced, during human evolution with the introduction of the first identity markers.

It is possible that individuals who recognize and accept each other don’t share a sense of belonging to a group; their identifications could be purely interpersonal rather than categorical (**Brewer, 2001**). This seems unlikely, as the problem becomes how the members’ perceptions as to who belongs stay in alignment.² Hence **Seyfarth and Cheney’s (2017, p. 83)** conclusion that baboons conceive of social categories as independent of their members is what I’d anticipate; this would “allow for other primates perceiving societies as distinct, coherent entities,” as I wrote in section 3.4.1. Still, I thank **Krupenye et al.** for showing I overstepped by assuming societies in other species are *necessarily* perceived as categories (i.e., “imagined communities”).

Krupenye et al. hope for more research on whether other primates assess memberships using markers such as cultural differences (e.g., **Kerjean, van de Waal, & Canteloup, 2024**). My conclusion at present is they do not, since while chimpanzees transferring between communities generally take on the cultural traits of their adopted society, “an individual that continues to employ a technique characteristic of a different community, say to catch termites, isn’t shunned or attacked [or corrected] for its ‘deviance’” (sect. 3.4.1; **Westra et al., 2024**).

As for humans, most of what I call markers are cultural, as **Qirko** recognizes. However, any trait that members consciously or subconsciously register as informative regarding affiliations – be it genetically based or not (a topic I never discuss); socially learned or not; arbitrary, intrinsically meaningful, authentic or not – falls under my intentionally broad umbrella for “markers.”

Ramos-Fernandez, Smith Aguilar, Pietrangeli, Jasso-del Toro, Nicolás-Carlock, Boyer, Pinacho-Guendulain, Montiel Castro, & Aureli (Ramos-Fernandez et al.) are correct that people have multiple perceptions of identity, culturally rooted or otherwise, a subject that has been the gold mine for social psychologists and biologists studying animals with intricate identities. People aren’t stamped from a cookie cutter, and yet if they are to be respected members of their society, the traits associated with their varied personal and group identities, from social cliques to political affiliations, must fall within permissible boundaries; “outliers poorly matching expectations are ostracized, stigmatized, pressured to change, or treated as foreign, depending on the kind and extent of their aberrance” (**Bos, Pryor, Reeder, & Stutterheim, 2013; Marques, Yzerbyt, & Lyons, 1988; Moffett, 2019, p. 88**). Despite this complexity, we have much to learn by selectively focusing on the societies themselves, which form an important slice of human self-definitions and the context in which many of our other affiliations play out.

I concur with **Qirko** that “identity formation and maintenance...needs to be considered if identity is to serve as a useful criterion for defining [a] society.” **Qirko** correctly notes too that “all [human] social groups incorporate cultural traits from

many sources.” Even societies, which I pick out for their durable memberships, are open to shifting the traits by which members recognize one another, including adopting desirable traits from other societies to “make them their own” (Moffett, 2019, p. 349); as I say in section 3.4.2, “Markers fall from favor or transform without disrupting society boundaries” (see Barth, 1969). The “authenticity” of a trait, brought up by Qirko, is therefore not something I think important. Despite their changeability, people perceive that persistent groups “possess some core, deeply ingrained cultural elements that... are not eroded by the passage of time,” or so Sani tells us. Still, George Washington would find the US a foreign place today.

Qirko describes society members as becoming especially monolithic in their collective identities during periods of external conflict. While writers from the Marquis de Sade to William Sumner have observed how clashes with outsiders can draw a society together, it is not that our identities become unified but rather that differences are likely to be put aside or overlooked. In any case people may disagree on all manner of issues including the advisability of war and yet, like it or not, recognize one another as fellow citizens, up to the point when a dissenter is rejected as a “black sheep” (Marques, Abrams, Paez, & Hogg, 2000),³ or such a perspective spreads across a subset of members that finds those views acceptable (Butera, Falomir-Pichastor, Mugny, & Quiamzade, 2017; Sani, 2008), thereby potentially contributing to the eventual division of the society (see sect. R6).

Tompkins, Jara-Ettinger, & Schachner (Tompkins et al.) opine on markers of identity that relate to the physical world, a category ranging from clothing to national monuments, quoting my description of “things we make as a kind of extended phenotype.” These authors apprehend the inanimate world as a source of social information they term the “socio-physical interface.” My only comment is it isn’t necessary for markers to be “difficult to fake” (even if the most important likely will be), given that what we assess in one another is an “ensemble of markers [that] turn us into walking billboards of our identities, the combined effect often overriding assessments of any particular trait” (sect. 3.4.2). So, while **Barry et al.** argue that vocalizations are ideal identity signals, a “rich combination of markers enables people to unmask those who don’t belong without hearing them speak a word” (Moffett, 2019, p. 86).

Collective memory, pursued by **Figueiredo et al.** as unique to our species, is a subject I have investigated under the heading “Remembering, forgetting, meaning, and stories” in Moffett (2019, pp. 179–183). As **Sani** reports, the social construction of the coherent and positive narratives from which these arise is a compelling aspect of societal identities. Our historical narratives are subject to revision such that, as Renan (1882) put it, “Forgetfulness, and I would even say historical error, are essential in the creation of a nation.” An example par excellence of narratives concerning the landscape are songlines “marking” the terrain with such detailed information of importance to Indigenous Australian identities as to create a mental map (Fernandez-Velasco & Spiers, 2024).⁴

For **Brewer & Caporael** societies are a kind of “macrodeme,” described as groups sharing cultural elements, notably a common vocabulary; they associate the earliest of these with hunter-gatherer ethnolinguistic groups (which I prefer to call multiband societies). Yet their examples of modern macrodemes include people identifying with academic fields or other special interests whose members oftentimes meet only periodically (as hunter-gatherer bands once did: Brewer & Caporael, 2006; Caporael,

2015). I agree that macrodemes add to “the enormous diversity of collective coordination” for humans. However, in their conception of the term, macrodemes are populous, usually at least in the hundreds, in contrast to intimate groups in, say, classrooms, which they call demes (their “core configurations” of human sociality, in descending order of “group size and activity,” are macrodemes, demes, task groups, and dyads: Brewer & Caporael, 2006, p. 137).

By contrast, societies, as conceived of here, are not restricted in size, some functioning with just a few members and others growing into the millions (sect. 7 leaves the lower limit to the discretion of others, noting that “even the very last survivor of a human society will retain the identity associated with his or her people”). Hence for species employing group identity markers, “a small society can be anonymous if it is demarcated through the use of labels that *potentially* allow some members not to know others” (Moffett, 2019, p. 372). Consider also that members of small hunter-gatherer societies may well have the “interpersonal relations” with every other that **Brewer & Caporael** attribute to demes yet still bond through markers that simultaneously reaffirm belonging while bestowing a sense of distinctiveness and lowering the cost of social surveillance, reducing identification errors (sect. 3.4.1). In contrast to what **Krupenye et al.** propose in their final paragraph, such functions could have rendered markers invaluable long before human societies expanded beyond the point where every member could recognize all their comrades individually.

Brewer & Caporael assert that “One critical function of the macrodeme is providing a defined pool for mate selection,” and that certainly can be true for some of these groups; but between societies there can be considerable outbreeding up to and including absolute exogamy, with across-the-board spousal interchanges between tribes speaking different languages in some areas of the Amazon and New Guinea (Aikhenvald, 2008, p. 47; Moffett, 2019, p. 349).

The diverse and often cross-cutting “macrodemes” that extend both within *and* between societies, like the societies themselves, allow for membership changes (sect. 3.6); and yet, while movements in or out of many such collectivities can be fluid, as **Brewer & Caporael** emphasize, that is hardly true for those entrenched groups treated here as societies: Consider the controversies arising around immigrants. Membership transfer to a new society is seldom effortless, in our species entailing expectations that the newcomers sufficiently conform to the local identity (assimilate: sect. 3.7), even in those cases of absolute exogamy. What is fluid for humans, as these authors expertly describe, is how particular collective identities can come to the fore at different times. Hence “compared to many social groups the existence of societies in everyday life can be as easily overlooked as the blue tint of the sky” (sect. 4); even so, exposure to identity markers constantly primes us to our society’s existence (Billig, 1995).

Group identities therefore occur in many forms for humans and on close inspection, examples exist throughout nature. **Ramos-Fernandez et al.** assert that “even the boundaries of systems as simple as cell aggregations are established not by an overarching, *a priori* collective identity.” However, the cells in a body are identified “by the chemicals on their surfaces, with the immune system killing foreign cells bearing the wrong signals. On this basis your body, with its trillions of member cells, represents a society of a microbial sort” (Moffett, 2019, p. 89).⁵ In fact, some definitions of an “organism” correspond closely to the one proposed here for a society.⁶

Finally, the issue of group identity comes up when we consider whether multiple species can be treated as members of one society, the subject taken on by **Andrews, Kelty, & Suryawanshi**. That would require those species to conform to the same framework being applied here to single species. Most examples that come to mind fail to meet the requirement that individuals distinguish those who belong from those who do not; hence, any dog can be adopted by people in any nation. The only example that holds up is the relationship between certain leafcutter ants and their fungal cultivars. The ants ordinarily accept only the fungal strain they have raised since their colony was founded, attacking strains originating from different colonies much as they attack foreign ants (Ivens, Nash, Poulsen, & Boomsma, 2008).

R3. Identities with respect to institutions and nations

Concerned as she is with clarifying the mechanisms behind the extraordinary malleability in human identities, **Wiessner** examines social institutions, defined as “the humanly and historically devised rules of the game” (Wiessner, 2002, p. 234, a reasonable match to how I characterized them in sect. 3.1). Her focus therefore deviates from the intent of proposing a concept of “society” and, more specifically, as kind of group entity. While it may be that, as **Dousset** writes, “belonging is inseparable and sometimes even undistinguishable from legitimate social control” in our species, inserting institutions into the concept doesn’t seem to improve its accuracy, or utility, in identifying which groups are societies; furthermore, doing so excludes nonhumans. This is not to deny that social institutions are crucial for (as Dousset puts it) “producing and reproducing the necessary sense of belonging” to a myriad of human collectives, from families and religious denominations to international consortia, with societies – a word whose definition Wiessner leaves open – being a cornerstone. Indeed, most of the markers that people associate with these manifold groups are doubtless instilled by “formal rules [and] informal constraints (norms of behavior, conventions and self-imposed codes of conduct)” (North, 1992, p. 9) that social institutions represent.

Wiessner mentions “release from proximity” (Rodseth et al., 1991) as one of the “fundamental cultural institutions that originated deep in our evolutionary history that allowed human societies [to] depart from the societal configurations of other species.” However, chimpanzees maintain complex social ties that include a sense of a shared group membership despite not living contiguously in space, even after extended periods apart. The principle of parsimony would therefore suggest that not only our societies (sect. 1), but the release from proximity of their members, trace back to the common ancestor of *Homo* and *Pan* (though of course any subsequently emerging cultural institutions, constructed to accommodate this release, would be unique to humans). Also, social networks can sometimes be “released” beyond societal borders to allow cooperation among communities or their members, as I describe. This opens opportunities for chain transfers of goods or ideas (e.g., rituals: Mulvaney, 1976), promoting societal enrichment and diversification (e.g., de Pablo et al., 2022), though one must not forget that these may spread through theft as well as trade; illustrative is how Chinese pottery switched hands, and societies, before ending up in the heart of Borneo (Dove, 2011). Ancient societies within regions of extensive trade and historical connectedness, such as Mesopotamia or Mesoamerica or the Aurignacian hunter-gatherers in what is now Europe (e.g., Baker, Rigaud, Pereira, Courtenay, & d’Errico, 2024; Vanhaeren

& d’Errico, 2006), who would have been members of numerous multiband societies, can be hard to distinguish from the archaeological evidence, making it expedient (and in some instances, necessary) to expound only on these broad regional categories.

I see the fundamental shift from our “foundational” ancestors as instead being the “release from familiarity” (Moffett, 2019, p. 152): A capacity to live comfortably among individuals we do not know or fail to recall – strangers.

Cerbone & Turilli take issue with my equating today’s societies with “nation states,” a phrase combining two concepts (the “state” being a “territorially bound group”: see sect. R4). They consider the one-to-one convergence of nation and state (or in the more general terms I use, ethnicity and society) to be “unknown in history.” That certainly has been true since some societies became sedentary. My preference has been to follow the widely understood definition of a nation as a country (e.g., Connor, 1978), writing that “nations – in the sense many scholars think about them, as independent groups of people sharing the same cultural identity and history – really existed only in [nomadic] hunter-gatherer days, when societies were far more uniform” (Moffett, 2019, p. 317). As the sociologist Anthony Smith wrote me in June 2012, “Not that there is any reason why there should not be some form of nationhood among hunter-gatherers (size being a highly variable criterion), but it would be of a form rather different from that common in the ancient world and the form of citizen nation with which we are familiar in the modern world.”

Once people lived in settlements, some societies began incorporating outsiders en masse, laying the foundations of nations (sensu “countries”) that, even when their populations in the passage of time came to appear uniform, “on close inspection ... are heterogeneous” (e.g., the Han Chinese: sect. 2), the members registering their remaining differences as having varied degrees of importance (a trajectory undeniably making each state, following the terminology of **Cerbone & Turilli**, a “multinational endeavor”). Which is to say that human societies have long been made up of peoples originating from different sources that rarely if ever “coincide with the territorial boundaries of a state,” as these authors recognize. For more overtly multicultural populations, the interpretation of a society as a people sharing an identity applies when we mean a superordinate identity stripped down to those minimal points of reference “that even diverse societies require of their citizens to stay intact without undue application of force (in the U.S., respect for the flag, endorsement of ideals of freedom, etc....)” (sect. 2), expected commonalities that can be tailored to ease, or discourage, the acceptance of particular groups (Guimond, De La Sablonnière, & Nugier, 2014; sect. 3.7; Hahn, Judd, & Park, 2010).

Despite such complications, then, I conclude that group identities are “the best [which is not to say perfect] criterion for defining, and thereby distinguishing, societies” (sect. 2); what fascinates is that perceptions around collective identities render human categories less ambiguous than they objectively are (e.g., Levin & Banaji, 2006; MacLin & MacLin, 2011), such that people’s sense of being in harmony with how others identify with their society can be more imagined than real.

R4. “Control of space” as a problematic criterion

Whitehead & Walmsley prefer a definition that leaves out territoriality. Societies would thereby encompass groups such as ethnicities, which English speakers do not normally describe using

the word “society” and which I have tried to exclude since they exist immersed within, and subordinate to, the groups that concern us here (sect. 3.8). Not that people require a territory to identify with a group; as **Brewer & Caporael** emphasize, the traits I subsume under the term “marker” “not only free collectives from the limits of group size but also limits of distance and even time.” Ethnic, religious, and other groups that don’t control an area, as **Whitehead & Walmsley** say, have “major impacts,” but that in no way reduces the merit of distinguishing them from societies. As **Parsons (1966)** concludes, “Many social systems such as local communities, schools, business firms, and kinship units are not societies, but rather sub-systems of a society,” an opinion echoed by another powerhouse in the field of sociology, **Lenski (2005, p. 17)**.

Figueiredo et al. likewise oppose control of a physical area as a criterion for a society. They find it objectionable that the Mapuche living in Chile should be looked at as an ethnicity even though their culture persists, “anchored by the transmission of collective memories.” However, we do not denigrate the Mapuche by treating them as an ethnic people who retain an awareness of a shared history that includes memories of having exclusive dominion over an ancestral homeland. Rather, we accurately convey their situation, buttressing the significance of their struggle to be independent – in the sense proposed here, to be a separate society. Note also that nowhere do I claim, as **Figueiredo et al.** assert, that dominated people such as the Mapuche are *necessarily* assimilated (rather, “depending on the whims of their subjugators, such peoples *could be* gradually integrated”: emphasis added; sect. 3.7), and certainly not that they will be *fully* assimilated, as ethnic traits never utterly vanish, though I should add that this is in part because minority groups resist losing those traits that make them distinctive.

In short, rather than legitimize “a neocolonial power structure” (**Figueiredo et al.**), my approach clarifies what those structures have forced on people. While I expressed an openness toward the discretionary removal of territoriality from the diagnosis for a society (“perhaps at minimum [allowing] for some diasporas whose very insular structure sets them apart from the host society,” as well as certain horticultural or hunter-gatherer peoples “that have by and large continued to act independently”: sects. 3.8 and 1.2), this may be a compelling rationale for keeping it in. In section 7, I describe a strong definition as one that breaks down when things about its referent get conceptually intriguing, as the Mapuche example demonstrates: “Situations where groups ...have identities that clash with the[ir] society throw light on the factors that can serve, over time, to further empower and expand societies or rend them and start new societies” (**Moffett, 2019, p. 19**).

Chapman prefers phrases along the lines of “physical space under control” over “territory” since the latter word is so often employed to express the active defense of a physical space. Perhaps true (e.g., **Brown & Orians 1970**), but note that, for example, the unabridged Oxford English Dictionary mentions defense only in the entry for “territory” that applies to animals. My goal is to change how biologists perceive territoriality so as to better reflect the variety of the cognitive challenges posed by encounters with outsiders (**Ashton, Kennedy, & Radford, 2020**), including the option of benign interactions across societal borders. Attachments can exist for instance between societies that have recently split off from each other (**Archie, Moss, & Alberts, 2006; Morrison et al., 2020**). Transitions in the breakup of a society, described below, including ties that linger after a society divides, are important

research topics – another example of a definition’s utility being demonstrated by how much we can learn from situations where it doesn’t quite work (sect. 7).

Can societies that are amicable in good times nevertheless allow outsiders into only part of the land they occupy, or drive them off entirely “when push comes to shove”? **Chapman** remarks that mountain gorillas tend to have affiliative contacts with other troops mostly at the periphery of their home range, a pattern suggesting that hawkish control of space is centered on the interior, or core, area. **Brooks & Samuni** point out that bonobos are considered nonterritorial. Yet despite their oftentimes friendly intergroup socializing and overlapping distributions, part of each bonobo community’s home range is, for all practical purposes, occupied “exclusively” (e.g., **Samuni, Langergraber, & Surbeck, 2022**), thereby meeting the ecological definition of “territory” as an area exclusively maintained (**Schoener 1968**); above and beyond that, the spacing out of communities across the landscape is almost certainly evidence of enforced territoriality in the ethological sense, expressed more intensely in the “core.” Could it be that we have missed critical moments of conflict when communities initially work out their spatial separations, after which these apes settle down to treat their neighbors most often affiliatively? The proposed definition leaves open the possibility that control of a physical site could be established once, or be expressed only in rare situations when resources are worth defending. For bonobos, any intercommunity antagonism over food (**Moscovice et al. 2022**) would be affected by the relative size and distribution of their fission-fusion parties, and their potential to recruit reinforcements.

To my mind, this need for a closer examination extends to oceanic species. Open ocean residents would likely show a mobile form of territoriality, staying in contact within a space from which they can choose to socialize with or exclude outsiders through aggression or avoidance (sect. 3.8). **Whitehead & Walmsley** hypothesize that control of space is uneconomical in the open ocean – hence their interest in dropping this criterion for a “society.” Indeed, what limited data exists suggests that pelagic bottlenose dolphins may not live in the clearly membered, long-term communities that characterize adjacent coastal populations of the West Florida Shelf (**Randall Wells, personal communication, 2024**). As for sperm whales, which live in small “units” belonging to one of the several “clans” that extend over an expansive range of ocean, **Whitehead & Walmsley** conclude that my assessment of this species as having nested societies (“societies [units] within societies [clans]”: sect. 4) holds only if the requirement for spatial control is dropped. From what evidence exists for the Pacific, however, where clans overlap widely, the whales consistently stay apart from all units of other clans and yet can choose to approach and intermix with units of their own clan (perhaps selectively, since some units are seen together more often, e.g., **Whitehead & Rendell, 2015**). **Whitehead & Walmsley** note that there is no way to compete at least over food in open seas, so why do clans stay apart? Perhaps because they have incompatible cultures (**Marcoux, Whitehead, & Rendell, 2007; Whitehead, 2024; Whitehead & Rendell, 2004**) that conceivably make it impossible for units of different clans to work together, for example, when hunting squid.

While acknowledging that it may be desirable to drop the criterion of territoriality for pelagic animals based on *a priori* reasoning, I nevertheless encourage marine biologists to look closely for instances of mobile control of space in the open ocean.

R5. Insights about the control of physical spaces

Baumeister & Southwick's discussion recalls an aspect of territoriality that biologists expect but seldom state outright: A territory is the space *in which those who control it actually live* (e.g., Sergio & Newton, 2003). That's not to say its residents cannot move outside that area, whether to intrude on adjacent territories or explore neutral or unoccupied ground (as prairie dogs do: Slobodchikoff, Perla, & Verdolin, 2009). For this reason, no sports team fulfills the proffered concept of a society: The Chicago Bears do not "live in" Soldier Field. Yet Baumeister & Southwick's commentary makes me curious as to whether many games are contrived to mimic characteristics that impassion citizens about their societies, including the goal of retaining control over, or seizing, a goal line or end zone. This would make clashes between teams a reasonable model for conflicts between societies, an idea these authors pursue.

A question wide open for investigation is whether the *group-level* usage of space could have a cognitive underpinning, much as group identities do; **Whitehead & Walmsley** conclude from the lack of evidence about this matter that control of a space is of secondary significance to societies. Forli and Yartsev (2023) is the only study I have seen that approaches the subject even tangentially for animals, while Xiao and Van Bavel (2012) report how people who feel threatened by immigrants think of the newcomers as originating from much nearer by than they really do; and even these studies don't investigate the issue of group *control* of a space.

Dousset asserts that "it is the coexistence of, and the relationship between multiple human groups that provided 'society' as Moffett defines it a reason to be." Indeed, control over a space can't apply when a society has no neighbors, a situation realized by the first colonizers of an area. This need for a point of comparison, implicit in the proposed definition (which intimates that the members can pick out anyone who *doesn't* belong), is the subject of a chapter in Moffett (2019), where I quote Royce (1982, p. 12): "The hypothetical group on an island with no knowledge of others is not an ethnic group; it does not have an ethnic identity; it does not have strategies based on ethnicity" (nor is it, given the terminology adopted here, a society). Still, I conclude that "once humans in isolation grow to more than a very few in number they seem to privilege some individuals over others, creating conditions under which multiple societies are born. The requisite foreigners would be birthed from within" (Moffett, 2019, p. 348). Dousset also touches on how people aren't born perceiving themselves as society members, a topic I address in section 3.7.

Qirko notes that groups can associate objects or regions with their identity even if they have lost control of those things, not just in the sense of a community that lives where it did originally though it has come to be dominated by others (as was **Figueiredo et al.**'s concern about indigenous ethnicities: [sect. R4](#)) but in the sense of a community driven off its former land. Yet I submit that retaining actual control over a piece of property, whether or not it is the people's ancestral homeland, remains the ideal yardstick for describing said community as a separate unit – society.⁷

R6. Stability of societies

Sani expands on my section 6, where I briefly look at the impermanence of societies. He confirms that his findings on how schisms emerge in organizations (e.g., church denominations and political parties; Sani, 2009) could apply to societal breakdowns as well, presenting an avenue for future research on a

critically important subject. My hypothesis (Moffett, 2013) that societies of most if not all species are not just ephemeral but "replicators" that go through a cycle, eventually coming to an end, or at least a division, to create a new generation of societies, will be difficult to document since vertebrate societies generally outlast research programs (e.g., in chimpanzees and bottlenose dolphins: Langergraber et al., 2014; Sellas, Wells, & Rosel, 2005).

I proposed in Moffett (2019, pp. 248–50) that shared markers of identity could have helped keep the societies of our ancestors bonded together at populations larger than those achieved by our primate cousins. **Chapman** may be right that we can learn only a limited amount about the birth of human societies, forged as they are by such markers, from other primates, who rely on individual recognition to stay together as a group. Still, the underlying sequence of events leading up to the division of our ancestral societies and those of many primates may be similar: Increasing stress, exacerbated by population growth, reduces the alignment among members in recognizing who belongs, precipitating the emergence of subgroups that in time divide. (I strongly suggest calling these permanent partings-of-the-way "divisions," since "fission" is widely accepted to indicate temporary separations of "parties" in fission-fusion species.)

Chapman portrays primate society divisions as gradual, which can be the case if the subgroups incrementally drift apart, as may occur with a baboon troop (Susan Alberts, personal communication, 2024). But often the actual severing transpires quickly; what unfolds over months or years are the schisms leading up to it (e.g., Feldblum, Manfredi, Gilby, & Pusey, 2018; references in van Horn, Buchan, Altmann, & Alberts, 2007). In the early stages of the breakdown of one macaque troop, for instance, conflicts initially took place between individuals but shifted to clashes between factions whose members acted en masse, as if they perceived the others as a collective by the time of the final severing (Prud'Homme, 1991).

For nomadic hunter-gatherers, schisms would likely arise because of limitations in communication between widely spaced bands. Lacking a means to connect regularly with all their compatriots and become comfortable with, if not adopt, trends emerging in distant corners of their society, they would eventually diverge markedly enough that their differences would present an irreconcilable source of discord at those times when bands did get together, as reflected, for instance, in localized variations in language (e.g., Birdsell, 1973; Dixon, 1972).

Societies as we know them today are another matter. As discussed above in response to **Cerbone & Turilli**, the borders of many nations show little connection to the identities of their citizens. I argue in Moffett (2019, pp. 301–5) that countries generally come into being when states that have aggressively expanded in the past, such as the USSR or Yugoslavia, fragment "between stretches of terrain heavily populated by ethnicities that once had societies of their own there" (ibid p. 303; Bookman, 1994; Kaiser, 1994; Sekulic, Massey, & Hodson, 1994). The result is the rebirth of former societies on their ancestral homelands, which had been absorbed when those societies were conquered or otherwise forced together and turned into ethnicities. (There are exceptions: Internal political machinations or outside forces can yield countries bearing no connection to those of the past, for example, in the separation of North from South Korea or the severing of Pakistan or Bangladesh from India.) This newfound freedom allows these regional populations to reinstitute diverse aspects of their identities that were never completely forgotten (their collective memories: **Figueiredo et al.**), even if those identities were modified

by immersion in the conquering group. The result is centuries-long cycles of expansions and contractions, conquests, and dissolutions across the globe (Chase-Dunn et al., 2010; Fauseit, 2016; Gavrillets, Anderson, & Turchin, 2014).

What makes it reasonable to think of the products of a division as the next generation of society isn't merely the disaffection that led to the split. A society's nascent years can be a time of revolution as its members ramp up their differences in identity to promote positive distinctiveness and group unity (Billig, 1995; Butz, 2009; Finell & Liebkind, 2010; Mummendey & Wenzel, 1999).

R7. Families and other tiers of sociality

Klein rightly takes me to task for omitting the phrase "aside from families" at the end of my section 4 title, "Societies are generally the most salient of what can be multiple levels of sociality." The preeminent importance of families as a social tier is a point brought up several times in Moffett (2019), for example, on p. 240: "The ties that bind people most tenaciously, beyond those to their immediate families, will be their identification with a society."

As **Klein** remarks, risk-taking is likely to be greatest for the sake of family members, though as Brewer (1991, p. 475) has stated with respect to national and ethnic groups, "People die for the sake of group distinctions." In humans the strongest impetus for taking extreme risks "for the greater good" arises from the potent feeling of shared identity that follows intense training or rituals, which can lead to identity fusion among the participants (Whitehouse & Lanman, 2014a; Whitehouse, McQuinn, Buhrmester, & Swann, 2014b). Still, in times of national threat, an emotional connection with the society, such as patriotism, or attunement to the expectations of other society members, would likely be the principal motivator driving someone to take the risk inherent in becoming a soldier in the first place, before the recruit has had the opportunity to meet any soon-to-be comrades, let alone fuse his or her identity with theirs. That's because a so-called band of brothers (what sociologists call a "primary group") requires something to fight for above and beyond their compatriots; in my view, primarily the society, a phenomenon Swann, Jetten, Gómez, Whitehouse, and Bastian (2012) call extended fusion.⁸ Because extended fusion is weak in the heat of battle compared to a commitment to one's comrades, its motivating role is easy to underestimate. Consider that the moment a country loses a war, its soldiers are more likely to surrender than continue fighting for the betterment of fellow troop members.

This risk-taking facet of societal commitment is readily applied only to people, given the impossibility of assessing whether animals join intergroup conflicts for the benefit of themselves, their kin, or the society at large (though for chimpanzees, participation in raids on foreign territories doesn't seem to strengthen the social bonds between the participants: Samuni, Crookford, & Wittig, 2021). Since undergoing intense rituals together is the primary avenue to local identity fusion in humans, the emotional contagion (Spoor & Kelly, 2004) of "rallies" or "greeting ceremonies" may be a good place to look for analogues among other mammals (e.g., in gray wolves and spotted hyenas: Dan Stahler, Christine Drea, personal communications, 2022).

A topic mentioned in several commentaries is multitier sociality, a consequential characteristic of many species, humans among them. **Grueter & Swedell** reject the concept of society I present because it doesn't allow the use of this term for all such tiers. That is my intent: To provide a conception such that the word

isn't simply employed, as it often has been, as yet one more synonym of "tier," "level," or "stratum," so as to render the idea of "a society" blandly uninformative. That said, I see no problem with treating multiple tiers as societies, wherever in the hierarchy they fall, provided they conform to clearly laid out conditions, even if the proposed definition happens to set a high bar for it.

In fact, **Grueter & Swedell** see me as favoring a definition of "society" that lines up most closely with their concept of "core," a term they use to describe what they consider the primary "socially bonded breeding units" of socially tiered species. While some of their examples of cores correspond with societies *sensu* this article (e.g., for savanna elephants), the two don't need to match, as they point out themselves, notably so given how these authors apply the term liberally enough to grant it even to simple monogamous families (hence they describe the "cores" of hunter-gatherers as "family units [mostly monogamous, sometimes polygynous, rarely polygynandrous]" existing within "interconnected multicamps": Grueter et al., 2020, p. 844). In my terms what represents a society for these hunter-gatherers is instead what Grueter & Swedell term a "multicamp" (my "multiband societies") (sect. 1.2). Like all human societies, those of nomadic hunter-gatherers contain layers of social affiliation (notably families distributed across relatively fluid bands, the latter homologous to chimpanzee parties, e.g., Layton, O'Hara, & Bilsborough, 2012).

Smaldino also considers multitiered sociality a problem for my concept, giving the example of France being nested in the E.U., the sort of circumstance I address in section 7. As put forward in Moffett (2019, p. 350), this union is a coalition inasmuch as "the members don't see the E.U. as an entity worthy of their loyalty the way they do their countries," which maintain independent territories. I agree with **Cerbone & Turilli** that Great Britain – or more accurately to their point, the United Kingdom – is another artificial construct, closer to an alliance than a society, as its people have at best a weak connection with even those minimal aspects of shared identity such as respect for national values described earlier; and the same is absolutely true of the countries that they point out were manufactured by outsiders after World War I, as is the case for much of Africa.

A case in point when it comes to the variable attributes of "nested" groups (e.g., Madsen & de Silva, 2024), only some of which meet the current criterion for a "society," is the gelada. As far as is known, those in the two upper tiers researchers claim for this primate, the "band" and "community" (Roux & Bergman, 2012; Snyder-Mackler, Beehner, & Bergman, 2012), share nothing "other than the habit of moving more or less across the same general ground" (sect. 4). While geladas' capacity for individual recognition is the subject of unsettled research, which **Grueter & Swedell** critique,⁹ these aggregations amount neither to "identity groups" (in that outsiders aren't distinguished) nor to "social groups" (at least insofar as a band or community shows no sign of acting as a separate collective when in contact with other groups in its own tier). Social scientists have long distinguished between groups lacking any meaning to those in them and those significant to the members (e.g., Isin, 2002, p. 26). Grueter et al. (2020) do so as well by concluding that "aggregations of social units without active social preferences (e.g., attracted to the same localized resource or co-occurring due to constraints of habitat structure) cannot be considered MLSs" (i.e., multilevel societies). These gelada tiers may be epiphenomena, having descended from a single ancestral society (or "unit," likely homologous to the troops of some other primates: Bergman, 2010, p. 3051) that originally roamed the area.

Which is not to say that merely being near others won't offer advantages, just as converging in a flock can yield payoffs to birds in confusing or driving off threats (Beauchamp, 2013) – and, in geladas, potentially doing so indifferent to whether the others present are part of the same band or community, and arguably without cooperating, given that the animals have identical goals but their actions are in no way organized to serve their collective advantage (Noah Snyder-Mackler, personal communication, 2023; meaning any benefits are “byproducts”: Sachs, Mueller, Wilcox, & Bull, 2004) – a situation that at best might be described as a “spurious collaboration.” This is why I proposed in section 4 that until we know more, such associations (among them certain groups ascribed to humans: Roscoe, 2009, p. 76) shouldn't be treated as tiers in a multitier *social* organization.

R8. Cooperative interactions, or relationships generally, as defining features

Cooperative interactions come to the fore in many commentaries. **Brooks & Samuni** claim that I lump together the diversity of cooperation and reject its importance “in one motion” when I conclude that “cooperation can be so varied and shifting...that it is judicious to define societies in a way that is neutral to its existence.” Not so. What I mean is that the wide variability in cooperation patterns – extending as cooperation does to species that lack societies (e.g., bison seek out companions within their unbounded herds: Joel Berger, personal communication, 2024) – makes cooperation problematic for *defining* societies. Moreover, the fact that, as **Ramos-Fernandez et al.** say, the multiple identities of humans and many other animals affect collaborations in myriad ways speaks as well to the inadvisability of singling out cooperation as a *societal* phenomenon, especially since intragroup conflicts may also have social utility (sect. 2).

Bodor & Havrancsik conclude that I see identity as “opposed to interaction,” which I don't; nor do I have any intention of either ignoring “interaction” or failing to acknowledge its centrality in the study of groups. Furthermore, my views are consistent with identity being “a social construction.” **Smaldino** conceives of a society “as a unit for collective behavior and information processing,” the latter phrase bringing to mind framing of a society as a group organized cooperatively by means of reciprocal communication; still, I cannot envision a concept of “society” based on information processing given how information flows between dyads to neighborhoods to societies *sensu* this article to EU-style alliances and, nowadays, across the globe.

Brooks & Samuni describe group territoriality as “a top-down group cooperation challenge.” No doubt spatial control can be inherently cooperative, whether or not the definition spells this out (and why should it: In sect. 3.1, I envisage one member safeguarding its group's space unassisted; if such a strategy is found, my money is on it being in an ant with very small colonies). Yet even assuming cooperation is a “foundational component of societies” (their words) such that no society can sustain itself without it (I agree, though it can be vanishingly weak: **Olson & Blumstein**, 2010; ch. 8 in MacDonald & Newman, 2022), societies “are not necessarily natural units of cooperation” (my words).

I concur with **Ramos-Fernandez et al.** that social interactions are relevant and that “networks are preeminent tools for understanding societies.” My suggestion that societies are “generally the most salient” (note that I don't make salience obligatory) in no way demotes social networks or groups other than societies

to irrelevance (in particular for understanding the inner workings of societies, including the efficiency of their networks, e.g., Pasquaretta et al., 2014); I just don't see the utility of networks (or “interactions”) in fulfilling the role of a definition to accurately distinguish one of the things-being-defined from any other, given that both positive and negative interactions, and the social networks that thereby emerge, can occur in and between societies. Think about it: While social networks in aggregate can largely (or in species without intergroup relations, entirely) match the boundaries of society memberships (i.e., have a high “network modularity”), this almost certainly is not because those networks are confined to that set of individuals by happenstance but because those members differ from all “outsiders” in sharing a unique group identification as a diagnostic trait.

I also agree with **Ramos-Fernandez et al.** that “it is relationships, not simply group membership, that animals pay attention to.” Vertebrates put cognitive energy into attending to their personal connections (e.g., Dunbar, 2009). On this basis these authors prefer to frame societies with respect to social relations (but do not specify how such a concept would read to serve for studies across species). I would argue, however, that the spider monkeys studied by Ramos-Fernandez et al. present one of many cases of how animals establish social relationships with reference first and foremost to recognizing one another's membership in a significant group, their society: The immediate hostile response elicited by encounters between members of adjacent communities cannot be explained by prior interaction between those individuals; rather, a resolutely negative reaction to any and all “foreign” monkeys will have existed without interruption back to the origin of the species and must be overcome by any individual who transfers, generally after a period of integration. Indeed, the finding that vervet males who successfully transfer into a new troop switch their call from one indicating that its members are foreign to another communicating their position in the local hierarchy (Seyfarth & Cheney, 1984) suggests a category shift in how they perceive themselves (“group mindedness”: Brooks & Yamamoto 2022); Robert Seyfarth (personal communication, 2024) thinks it likely that troop members also change their vocalizations to the newcomer in the same manner (even if the new resident still doesn't get along with everyone and can be subject to attacks: Cheney & Seyfarth, 1990, p. 22). As for humans, most social identity theorists see group identification as a necessary condition (and, likely, precondition: Fabio Sani, personal communication, 2024) to sustain significant collaborations over time (Smaldino, 2019; Tomasello, 2009).

Ramos-Fernandez et al. give a nod to Hinde (1976), who drew on concepts from the social sciences to explore animal interactions, relationships, and social structure. Yet while Hinde mentions primate societies (i.e., troops), it is with respect to their internal structure; their memberships are taken as a given or, in the case of intergroup relationships, omitted. Hinde's concerns bore solely on internal social cohesion, leaving unaddressed the unity, and external delineations, of societies. This reflected the perspective of most social scientists of that era, as studies of intergroup behavior involving the *categorization* of individuals (notably by Tajfel, 1970, 1974) were widely ignored until the 1980s (Marilynn Brewer, personal communication, 2024).

No commentator raised much objection to the second of my criteria for societies, that the groups must have the potential to last for generations. I will point out that a gap exists in our knowledge of the relation between the formation of minimal, and generally transient, groups and the identification to societies that can

endure for lifetimes. Can the first be reinforced to become the second?

I again thank all the commentators for a stimulating discussion about how to define and understand societies. Of the questions that have been raised, one of the most basic may be how humans initially came to employ shared traits as markers of identity; and then how, from that humble start, those identities expanded into the many and varied forms people exhibit today. A hypothesis that I propose as a basis for further research is that the labyrinth of modern human identities evolved from our predecessors' foundational sense of belonging to a society, which eventually branched out into affiliations to innumerable groups of varying importance, prestige, and longevity. As a consequence of this deep history, collectives ranging from gangs to corporations share characteristics with societies; by virtue of this correspondence, as **Chapman** affirms, insights into the dynamics of group affiliation at lower or higher levels may illuminate processes operating at the societal level, and vice versa. Certainly, though, the most profound, and urgent, questions are those bearing on what keeps a society together and functional, in opposition to the forces that tear it apart by engendering distrust, social schisms, outright anarchy, and civil war.

Acknowledgement. Input from Susan Alberts, Guy Beauchamp, Joel Berger, Shermin de Silva, Fredric Dolezal, Vicki Fishlock, Pascal Gagneux, Shane Gero, Peter Henzi, Laurence Hirschfeld, Geoff Hodgson, Michael Huffman, Lucia Jacobs, Craig Packer, Thomas Pradeu, Christina Riehl, Carolus van Schaik, Robert Seyfarth, Steven Sherman, Martin Surbeck, Taylor Hersh, Erica Van de Waal, and Michael Yartsev is greatly appreciated. Marilyn Brewer, Colin Chapman, Aureli Filippo, Cyril Grueter, Paul Smaldino, and Hal Whitehead kindly clarified some of the issues brought up in their commentaries.

Financial support. This work was supported by John Templeton Foundation grant 61819. The opinions expressed are those of the author and do not necessarily reflect the views of the John Templeton Foundation.

Notes

1. Even if in this case the constituent members don't create one localized object from being in physical contact.
2. I addressed this problem with social networks in section 5.
3. Hence member actions aimed at maintaining group identity can include both the regulation of external boundaries vis-à-vis outsiders and managing internal inconsistencies in identity. A theory from immunology (Pradeu, Jaeger, & Vivier, 2013) is that identity variants tend to be rejected when introduced too abruptly, which might apply here to a black sheep.
4. **Dousset** notes that the Western Desert Aborigines do not claim ownership over the lands they occupy, an interesting outlier human population discussed in section 6.
5. Formally speaking, Ramos-Fernandez et al. are correct in that a *collective* identity implies a sense of collective agency and the need for individuals "to experience group identity," as **Brewer & Caporael** put it, that cells don't possess.
6. This isn't to say that complications around identity are fewer at a cellular level than for animals: gut microbes can be tolerated or adaptively identified by the body they inhabit at the same time outright parasites insert themselves by exploiting weaknesses in its recognition system (Pradeu 2020, ch. 3).
7. **Brooks & Samuni** argue that, as an alternative to physical territories, societies can "maintain control of social, reproductive, or even conceptual spaces." While such collectives could certainly fit among the many alternative definitions of "society," this usage fails to capture the sort of group I have in mind. "Social collectives," the phrase employed in their concluding sentence, may serve nicely instead.

8. Both kinds of social fusion can be coopted by groups such as religious sects and ethnic minorities, with the potential for rupturing a society; see [section R6](#) and section 5 of the target article.

9. **Bergman** (2010) showed that limited individual recognition is likely for male geladas; female interactions are so limited, however, that Thore Bergman (personal communication, 2024) expects they likewise lack "much recognition beyond the team" (i.e., the unit to which their own unit most closely associates).

References

- Aikhenvald, A. Y. (2008). Language contact along the Sepik River, Papua New Guinea. *Anthropological Linguistics*, 50, 1–66.
- Archie, E. A., Moss, C. J., & Alberts, S. C. (2006). The ties that bind: Genetic relatedness predicts the fission and fusion of social groups in wild African elephants. *Proceedings of the Royal Society B: Biological Sciences*, 273, 513–522.
- Ashton, B. J., Kennedy, P., & Radford, A. N. (2020). Interactions with conspecific outsiders as drivers of cognitive evolution. *Nature Communications*, 11, 4937.
- Baker, J., Rigaud, S., Pereira, D., Courtenay, L. A., & d'Errico, F. (2024). Evidence from personal ornaments suggest nine distinct cultural groups between 34,000 and 24,000 years ago in Europe. *Nature Human Behaviour*, 8, 431–444.
- Barth, F. (1969). Introduction. In F. Barth (Ed.), *Ethnic groups and boundaries: The social organization of culture difference* (pp. 9–38). Little, Brown.
- Beauchamp, G. (2013). *Social predation: How group living benefits predators and prey*. Elsevier.
- Bergman, T. J. (2010). Experimental evidence for limited vocal recognition in a wild primate: Implications for the social complexity hypothesis. *Proceedings of the Royal Society B*, 277, 3045–3053.
- Bergman, T. J., & Beehner, J. C. (2015). Measuring social complexity. *Animal Behaviour*, 103, 203–209.
- Billig, M. (1995). *Banal nationalism*. Sage Publications.
- Birdsell, J. B. (1973). The basic demographic unit. *Current Anthropology*, 14, 337–356.
- Bookman, M. Z. (1994). War and peace: The divergent breakups of Yugoslavia and Czechoslovakia. *Journal of Peace Research*, 31, 175–187.
- Bos, A. E., Pryor, J. B., Reeder, G. D., & Stutterheim, S. E. (2013). Stigma: Advances in theory and research. *Basic and Applied Social Psychology*, 35, 1–9.
- Boughman, J. W., & Wilkinson, G. S. (1998). Greater spear-nosed bats discriminate group mates by vocalizations. *Animal Behaviour*, 55, 1717–1732.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17, 475–482.
- Brewer, M. B. (2001). Ingroup identification and intergroup conflict. In R. Ashmore, L. Jussim & D. Wilder (Eds.), *Social identity, intergroup conflict, and conflict reduction* (Vol. 3, pp. 17–41). Oxford University Press.
- Brewer, M. B., & Caporael, L. R. (2006). Social identity motives in evolutionary perspective. In R. Brown & D. Capozza (Eds.), *Social identities: Motivational, emotional, cultural influences* (pp. 135–152). Psychology Press.
- Brooks, J., & Yamamoto, S. (2022). The evolution of group-mindedness: Comparative research on top-down and bottom-up group cooperation in bonobos and chimpanzees. *Current Opinion in Behavioral Sciences*, 47, 101205.
- Brown, J. L., & Orians, G. H. (1970). Spacing patterns in mobile animals. *Annual Review of Ecology and Systematics*, 1, 239–262.
- Butera, F., Falomir-Pichastor, J. M., Mugny, G., & Quiamzade, A. (2017). Minority influence. In S. G. Harkins, K. D. Williams & J. M. Burger (Eds.), *The Oxford handbook of social influence* (p. 317). Oxford University Press.
- Butz, D. A. (2009). National symbols as agents of psychological and social change. *Political Psychology*, 30, 779–804.
- Caporael, L. R. (2015). Parts and wholes: The evolutionary importance of groups. In C. Sedikides & M. B. Brewer (Eds.), *Individual self, relational self, collective self* (pp. 241–258). Psychology Press.
- Chase-Dunn, C., Niemeyer, R., Alvarez, A., Inoue, H., Lawrence, K., & Love, J. (2010). Cycles of rise and fall, upsweeps and collapses. In L. E. Grinin, P. Herrmann, A. Korotayev & A. Tausch (Eds.), *History and mathematics: Processes and models of global dynamics* (pp. 64–91). Uchitel.
- Cheney, D. L., & Seyfarth, R. M. (1990). *How monkeys see the world: Inside the mind of another species*. University of Chicago Press.
- Connor, W. (1978). A nation is a nation, is a state, is an ethnic group is a.... *Ethnic & Racial Studies*, 1, 377–400.
- de Pablo, J. F. L., Romano, V., Derex, M., Gjesfeld, E., Gravel-Miguel, C., Hamilton, M. J., ... Lozano, S. (2022). Understanding hunter-gatherer cultural evolution needs network thinking. *Trends in Ecology & Evolution*, 37, 632–636.
- Desai, N. P., Fedurek, P., Slocombe, K. E., & Wilson, M. L. (2022). Chimpanzee pant-hoots encode individual information more reliably than group differences. *American Journal of Primatology*, 84, e23430.
- Dixon, R. M. W. (1972). *The Dyrirbal language of North Queensland*. Cambridge University Press.

- Dove, M. (2011). *The banana tree at the gate: A history of marginal peoples and global markets in Borneo*. Yale University Press.
- Dunbar, R. I. M. (2009). The social brain hypothesis and its implications for social evolution. *Annals of Human Biology*, 36, 562–572.
- Faulstich, R. K. (Ed.). (2016). *Beyond collapse: Archaeological perspectives on resilience, revitalization, and transformation in complex societies*. Southern Illinois University Press.
- Feldblum, J. T., Manfredi, S., Gilby, I. C., & Pusey, A. E. (2018). The timing and causes of a unique chimpanzee community fission preceding Gombe's Four Year's War. *Journal of Physical Anthropology*, 166, 730–744.
- Fernandez-Velasco, P., & Spiers, H. J. (2024). Wayfinding across ocean and tundra: What traditional cultures teach us about navigation. *Trends in Cognitive Sciences*, 28, 56–71.
- Finell, E., & Liebkind, K. (2010). National symbols and distinctiveness: Rhetorical strategies in creating distinct national identities. *British Journal of Social Psychology*, 49, 321–341.
- Fitch, W. T. (2000). The evolution of speech: A comparative review. *Trends in Cognitive Science*, 4, 258–267.
- Forli, A., & Yartsev, M. M. (2023). Hippocampal representation during collective spatial behaviour in bats. *Nature*, 621, 796–803.
- Gavrilits, S., Anderson, D. G., & Turchin, P. (2014). Cycling in the complexity of early societies. In L. E. Grinin & A. V. Korotayev (Eds.), *History and mathematics* (pp. 136–158). Uchitel.
- Godfrey-Smith, P. (2009). *Darwinian populations and natural selection*. Oxford University Press.
- Grueter, C. C., Qi, X., Zinner, D., Bergman, T., Li, M., Xiang, Z., ... Fischer, J. (2020). Multilevel organisation of animal sociality. *Trends in Ecology and Evolution*, 35, 834–847.
- Guimond, S., De La Sablonnière, R., & Nugier, A. (2014). Living in a multicultural world: Intergroup ideologies and the societal context of intergroup relations. *European Review of Social Psychology*, 25, 142–188.
- Hahn, A., Judd, C. M., & Park, B. (2010). Thinking about group differences: Ideologies and national identities. *Psychological Inquiry*, 21, 120–126.
- Hinde, R. A. (1976). Interactions, relationships and social structure. *Man*, 7, 1–17.
- Isin, E. F. (2002). *Being political: Genealogies of citizenship*. University of Minnesota Press.
- Ivens, A. B. F., Nash, D. R., Poulsen, M., & Boomsma, J. J. (2008). Caste-specific symbiont policing by workers of *Acromyrmex* fungus-growing ants. *Behavioral Ecology*, 20, 378–384.
- Kaiser, R. J. (1994). *The geography of nationalism in Russia and the USSR*. Princeton University Press.
- Kerjean, E., van de Waal, E., & Canteloup, C. (2024). Social dynamics of vervet monkeys are dependent upon group identity. *Science*, 27, 1–19.
- Langergraber, K. E., Rowney, C., Schubert, G., Crookford, C., Hobaiter, C., Wittig, R., ... Vigilant, L. (2014). How old are chimpanzee communities? Time to the most recent common ancestor of the Y-chromosome in highly patrilocal societies. *Journal of Human Evolution*, 69, 1–7.
- Layton, R., O'Hara, S., & Bilsborough, A. (2012). Antiquity and social functions of multilevel social organization among human hunter-gatherers. *International Journal of Primatology*, 33, 1215–1245.
- Lenski, G. (2005). *Ecological-evolutionary theory*. Paradigm Publishers.
- Levin, D. T., & Banaji, M. R. (2006). Distortions in the perceived lightness of faces: The role of race categories. *Journal of Experimental Psychology*, 135, 501–512.
- MacDonald, D. W., & Newman, C. (2022). *The badgers of Wytham Woods: A model for behavior, ecology, and evolution*. Oxford University Press.
- MacLin, O. H., & MacLin, M. K. (2011). The role of racial markers in race perception and racial categorization. In R. B. Adams Jr., N. Ambady, K. Nakayama & S. Shimojo (Eds.), *The science of social vision* (pp. 321–346). Oxford University Press.
- Madsen, A., & de Silva, S. (2024). Societies with fission–fusion dynamics as complex adaptive systems: The importance of scale. *Philosophical Transactions B*, 379, 20230175.
- Marcoux, M., Whitehead, H., & Rendell, L. (2007). Sperm whale feeding variation by location, year, social group and clan: Evidence from stable isotopes. *Marine Ecology Progress Series*, 333, 309–314.
- Marques, J. M., Yzerbyt, V. Y., & Lyons, J.-P. (1988). The “black sheep effect”: Extremity of judgments towards ingroup members as a function of group identification. *European Journal of Social Psychology*, 18, 1–16.
- Marques, J. M., Abrams, D., Paez, D., & Hogg, M. (2000). Social categorization, social identification, and rejection of deviant group members. In M. A. Hogg & R. S. Tindale (Eds.), *Blackwell handbook of social psychology: Group processes* (pp. 400–424). Blackwell.
- Moffett, M. W. (2013). Human identity and the evolution of societies. *Human Nature*, 24, 219–267.
- Moffett, M. W. (2019). *The human swarm: How our societies arise, thrive, and fall*. Basic Books.
- Morrison, R. E., Hirwa, J. P., Mucyo, J. P. S., Stoinski, T. S., Vecellio, V., & Eckardt, W. (2020). Inter-group relationships influence territorial defense in mountain gorillas. *Journal of Animal Ecology*, 89, 2852–2862.
- Moscovice, L. R., Hohmann, G., Trumble, B. C., Fruth, B., & Jaeggi, A. V. (2022). Dominance or tolerance? Causes and consequences of a period of increased intercommunity encounters among bonobos. *LuiKotale. International Journal of Primatology*, 43, 434–459.
- Mulvaney, D. J. (1976). The chain of connection: The material evidence. In N. Peterson (Ed.), *Tribes and boundaries in Australia* (pp. 72–94). Humanities Press.
- Mummendey, A., & Wenzel, M. (1999). Social discrimination and tolerance in intergroup relations: Reactions to intergroup difference. *Personality & Social Psychology Review*, 3, 158–174.
- North, D. C. (1992). *Transaction costs, institutions, and economic performance*. ICS Press.
- Noyes, A., & Dunham, Y. (2020). Groups as institutions: The use of constitutive rules to attribute group membership. *Cognition*, 196, 104–143.
- Olson, L. E., & Blumstein, S. T. (2010). Applying the coalitionary-traits metric: Sociality without cooperation in male yellow-bellied marmots. *Behavioral Ecology*, 21, 957–965.
- Parsons, T. (1966). *Societies: Evolutionary and comparative perspectives*. Prentice Hall.
- Pasquarella, C., Levé, M., Claidiere, N., Van De Waal, E., Whiten, A., MacIntosh, A. J., ... Crofoot, M. C. (2014). Social networks in primates: Smart and tolerant species have more efficient networks. *Scientific Reports*, 4, 7600.
- Pradeu, T. (2020). *The philosophy of immunity*. Cambridge University Press.
- Pradeu, T., Jaeger, S., & Vivier, E. (2013). The speed of change: Towards a discontinuity theory of immunity? *Nature Reviews Immunology*, 13, 764–769.
- Prud'Homme, J. (1991). Group fission in a semifree-ranging population of Barbary macaques. *Primates*, 32, 9–22.
- Renan, E. (1882) (reprinted 1990). What is a nation? In H. K. Bhabah (Ed.), *Nation and narration* (pp. 8–11). Routledge.
- Rodseth, L., Wrangham, R. W., Harrigan, A. M., Smuts, B. B., Dare, R., Fox, R., ... Otterbein, K. F. (1991). The human community as a primate society. *Current Anthropology*, 32, 221–254.
- Roscoe, P. B. (2009). Social signaling and the organization of small-scale society: The case of contact-era New Guinea. *Journal of Archaeological Method and Theory*, 16, 69–116.
- Roux, A., & Bergman, T. J. (2012). Indirect rival assessment in a social primate, *Theropithecus gelada*. *Animal Behaviour*, 83, 249–255.
- Royce, A. P. (1982). *Ethnic identity: Strategies of diversity*. Indiana University Press.
- Sachs, J. L., Mueller, U. G., Wilcox, T. P., & Bull, J. J. (2004). The evolution of cooperation. *The Quarterly Review of Biology*, 79, 135–160.
- Samuni, L., Crookford, C., & Wittig, R. M. (2021). Group-level cooperation in chimpanzees is shaped by strong social ties. *Nature Communications*, 12, 1–10.
- Samuni, L., Langergraber, K. E., & Surbeck, M. H. (2022). Characterization of *Pan* social systems reveals in-group/out-group distinction and out-group tolerance in bonobos. *Proceedings of the National Academy of Sciences* 119, e201122119.
- Sani, F. (2008). Schism in groups: A social psychological account. *Social and Personality Psychology Compass*, 2, 718–732.
- Sani, F. (2009). Why groups fall apart: A social psychological model of the schismatic process. In F. Butera & J. M. Levine (Eds.), *Coping with minority status* (pp. 243–266). Cambridge University Press.
- Schoener, T. W. (1968). Sizes of feeding territories among birds. *Ecology*, 49, 123–141.
- Sekulic, D., Massey, G., & Hodson, R. (1994). Who were the Yugoslavs? Failed sources of a common identity in the former Yugoslavia. *American Sociological Review*, 59, 83–97.
- Sellas, A. B., Wells, R. S., & Rosel, P. E. (2005). Mitochondrial and nuclear DNA analyses reveal fine scale geographic structure in bottlenose dolphins in the Gulf of Mexico. *Conservation Genetics*, 6, 715–728.
- Sergio, F., & Newton, I. (2003). Occupancy as a measure of territory quality. *Journal of Animal Ecology*, 72, 857–865.
- Seyfarth, R. M., & Cheney, D. L. (1984). The acoustic features of vervet monkey grunts. *Journal of the Acoustical Society of America*, 75, 1623–1628.
- Seyfarth, R. M., & Cheney, D. L. (2017). Precursors to language: Social cognition and pragmatic inference in primates. *Psychonomic Bulletin and Review*, 24, 79–84.
- Slobodchikoff, C. N., Perla, B. S., & Verdolin, J. L. (2009). *Prairie dogs: Communication and community in an animal society*. Harvard University Press.
- Smaldino, P. E. (2019). Social identity and cooperation in cultural evolution. *Behavioural Processes*, 161, 108–116.
- Snyder-Mackler, N., Beehner, J. C., & Bergman, T. J. (2012). Defining higher levels in the multilevel societies of geladas (*Theropithecus gelada*). *International Journal of Primatology*, 33, 1054–1068.
- Spoor, J. R., & Kelly, J. R. (2004). The evolutionary significance of affect in groups. *Group Processes & Intergroup Relations*, 7, 398–412.
- Swann Jr., W. B., Jetten, J., Gómez, Á., Whitehouse, H., & Bastian, B. (2012). When group membership gets personal: A theory of identity fusion. *Psychological Review*, 119, 441–456.
- Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, 223, 96–103.
- Tajfel, H. (1974). Social identity and intergroup behaviour. *Social Science Information*, 13, 65–93.
- Tomasello, M. (2009). *Why we cooperate*. MIT Press.

- Vanhaeren, M., & d'Errico, F. (2006). Aurignacian ethno-linguistic geography of Europe revealed by personal ornaments. *Journal of Archaeological Science*, 33, 1105–1128.
- van Horn, R. C., Buchan, J. C., Altmann, J., & Alberts, S. C. (2007). Divided destinies: Group choice by female savannah baboons during social group fission. *Behavioral Ecology & Sociobiology*, 61, 1823–1837.
- Westra, E., Fitzpatrick, S., Brosnan, S. F., Gruber, T., Hobaiter, C., Hopper, L. M., ... Andrews, K. (2024). In search of animal normativity: A framework for studying social norms in non-human animals. *Biological Reviews*, 99, 1058–1074.
- Whitehead, H. (2024). Sperm whale clans and human societies. *Royal Society Open Science*, 11, 231353.
- Whitehead, H., & Rendell, L. (2004). Movements, habitat use and feeding success of cultural clans of South Pacific sperm whales. *Journal of Animal Ecology*, 73, 190–196.
- Whitehead, H., & Rendell, L. (2015). *The cultural lives of whales and dolphins*. Chicago: University Press.
- Whitehouse, H., & Lanman, J. A. (2014a). The ties that bind us: Ritual, fusion, and identification. *Current Anthropology*, 55, 674–695.
- Whitehouse, H., McQuinn, B., Buhrmester, M., & Swann Jr., W. B. (2014b). Brothers in arms: Libyan revolutionaries bond like family. *Proceedings of the National Academy of Sciences*, 111, 17783–17785.
- Wiessner, P. (2002). The vines of complexity: Egalitarian structures and the institutionalization of inequality among the Enga. *Current Anthropology*, 43, 233–269.
- Xiao, Y. J., & Van Bavel, J. J. (2012). See your friends close and your enemies closer: Social identity and identity threat shape the representation of physical distance. *Personality and Social Psychology Bulletin*, 38, 959–972.