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Human Identity and the Evolution of Societies

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Abstract Human societies are examined as distinct and coherent groups. This trait is most parsimoniously considered a deeply rooted part of our ancestry rather than a recent cultural invention. Our species is the only vertebrate with society memberships of significantly more than 200. We accomplish this by using society-specific labels to identify members, in what I call an anonymous society. I propose that the human brain has evolved to permit not only the close relationships described by the social brain hypothesis, but also, at little mental cost, the anonymous societies within which such alliances are built. The human compulsion to discover or invent labels to "mark" group memberships may originally have been expressed in hominins as vocally learned greetings only slightly different in function from chimpanzee pant hoots (now known to be society-specific). The weight of evidence suggests that at some point, conceivably early in the hominin line, the distinct groups composed of several bands that were typical of our ancestors came to be distinguished by their members on the basis of multiple labels that were socially acquired in this way, the earliest of which would leave no trace in the archaeological record. Often overlooked as research subjects, these sizable fission-fusion communities, in recent egalitarian hunter-gatherers sometimes 2,000 strong, should consistently be accorded the status of societies, in the same sense that this word is used to describe tribes, chiefdoms, and other cultures arising later in our history. The capacity of hunter-gatherer societies to grow sufficiently populous that not all members necessarily recognize one another would make the transition to larger agricultural societies straightforward. Humans differ from chimpanzees in that societal labels are essential to the maintenance of societies and the processes giving birth to new ones. I propose that anonymous societies of all kinds can expand only so far as their labels can remain sufficiently stable.

Keywords Coalitions · Fission-fusion · Hunter-gatherers · Language · Outgroups · Nationalism · Social learning · Symbols · Tribes · Xenophobia

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Human societies grow into the hundreds, thousands, and occasionally to a billion or more. The potential for such growth is unique among vertebrates. Dunbar (1993) put forward that social networks were key in the evolution of the large neocortex of humans and some other animals (the social-brain hypothesis). Based on the relative volume of our neocortex compared with that of other primates, he surmised that humans form intimate bonds or coalitions with 150 individuals at most ("Dunbar's number"). This led him to ask (1993:692), "How is it that, despite these apparent cognitive constraints on group size, modern human societies are nonetheless able to form super-large groups (e.g., nation states)?" That is the question I address in this article.

My goal is to show that humanity's deep social structure (sensu Brown 2004; Chapais 2011) includes the differentiation of societies by means of shared symbols of identity, a trait that has had major consequences for our evolution, and potential ramifications across many fields of study. I buttress this assertion with a wide range of information drawn from disciplines ordinarily not discussed in one place, to what I hope is a strong cumulative effect. Some conclusions are admittedly tentative given the difficulties in rendering arguments from different fields compatible and the often limited data, but I present them as working hypotheses to stimulate empirical and theoretical research that will often need to transcend traditional specialties.

Anthropologists are one intended audience, though the interdisciplinary nature of the subject matter assures that different sections of the text are likely to interest other readers. First, I establish how the use of identity labels fits into the hierarchy of degrees of intimacy with which people know one another. Then I consider the social psychology literature, and limited physiology and brain-science data, concerning ingroup/outgroup distinctions and societal labels. I review evidence that hunter-gatherers have distinct, multiple-band, symbol-based societies, describing the functionality of such societies and how they might have evolved, by way of simple steps, from primate behaviors. I examine the role identity labels play in the evolution and ontogeny of societies by reviewing the process by which new societies form in the chimpanzee and bonobo compared with symbol-based hunter-gatherers. I conclude with a discussion of the effects of identity labels on aggression, and on the size and stability of human societies in general.

Part 1. Anonymous and Individual-Recognition Societies

Animal Societies and Their Memberships

Individuals can be described as *social* whenever they cooperate beyond mere sexual activity. There is an expansive literature on sociality and cooperation based on models of kin selection, multilevel selection, and direct and indirect forms of reciprocity (e.g., Bowles 2006, 2009; Boyd and Richerson 1988, 1989; Eshel and Cavalli-Sforza 1982; Nowak et al. 2010). For those cooperators to be part of a *society*, however, they need to belong to a bounded group—one in which all the members can clearly distinguish each other from outsiders (Moffett 2012). The characteristic of forming bounded groups typifies primates living in groups larger than immediate families and is likely to have deep evolutionary roots for *Homo sapiens*, being a synapomorphy with the sister clade of chimpanzees and bonobos. Brewer (2007:735) wrote that "as a consequence of our evolutionary history, our sense of personal security and certainty are maximized in the context of shared ingroup membership and clear ingroup/outgroup distinctions," a statement that can also be applied to the societies of other animals.

Vertebrates other than humans and naked mole rats form *individual-recognition societies* (Moffett 2012). In these societies each member must be able to recognize every other member as an individual, both allies and all others included (e.g., Bergman 2010; Johnston and Bullock 2001; Pokorny and de Waal 2009; data are still needed for many species). Species that rely on individual recognition have societies of fewer than 200.[1] Groups larger than this are invariably not societies, but aggregations—schools, herds, etc.—from which individuals come and go with relative impunity. This figure is not far off from Dunbar's number but in this case has little bearing on the coalitionary alliances or cliques the animals manifest (their *common bond groups*: Prentice et al. 1994), which in most species will be smaller than the size of a society. I submit there is a limit on the number of members, kin, allies, and all others among them, that an individual can remember, even sketchily, and keep track of. Whether the societies of a species attain this population or have a lower size limit owing to factors other than memory will be determined by the rules of society reproduction (Part 6). The total reliance on individual recognition compels these vertebrates to interact with every society member as an individual, rendering large-scale cooperation prohibitive (Machalek 1992).

In this paper, I look at the human ability to form societies in which members can tell one another from outsiders by shared signals, which allow us to accept as group members individuals we have never met or otherwise learned about. I have called these *anonymous societies* (Moffett 2012) to reflect this *potential* for anonymity—that is, whether or not anonymity was realized between any of the members because of population size and density. I propose that the initial societies of our ancestors to employ such signals would have been small enough for there to have been minimal unfamiliarity among the members, yet populous enough to tax the memories of individual members, and that the signals would eventually serve to eliminate this source of social stress.

The use of shared recognition signals (arbitrary signals or cues, also called labels, markers, tags, or symbols; e.g., Cohen 2012; McElreath et al. 2003; Riolo et al. 2001) gives us, as one writer put it, "the human ability to imagine that a stranger is not an enemy" (Berreby 2005). In this way, societies exclude outsiders and, through normative conformity in humans, constrain members to remain with a group that potentially contains more individuals than any member could ever meet face to face. This kind of label is of similar importance to most social insects, whose recognition signals usually are scents: hydrocarbons in an insect cuticle that serve as a kind of national emblem. Insect social labels can be flexible—some ants accept as colony members the offspring of unrelated queens and can even be manipulated to reject nestmates and allow the wrong worker species into a colony (Carlin and Hölldobler 1983), which is what happens when one ant colony enslaves another. The colony remains clearly bounded. By effectively employing labels for our respective societies, modern humans and a few

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[1] Moffett (2012) gave a lower limit of 100, but *Pan* communities can exceed this number, with a group studied by John Mitani (personal communication, 2012) at one point containing 187 chimpanzees. Naked mole-rats, with societies of up to 295 members, are an exception (Lacey and Sherman 1997). As it turns out, these rodents, much like social insects, have anonymous societies based on a colony odor, although as in humans they are capable of recognizing each other as individuals as well (Moffett 2012).

ant species live in groups that can expand without limits for at least as far as the environment permits, yet persist in being separate from other societies (Moffett 2012).

The employment of symbols in the broadest possible sense (e.g., Henshilwood and d'Errico 2011) was critical to the emergence of modern humans. However, throughout this paper I will choose phrases such as "social signal" and "symbol for a society" to specify only those symbols that members associate with their society taken as a whole, and no other type of affiliation. My interest will be purely in this distinctive, presumably archetypal and adaptive type of symbology. The word *label* will be my usual choice of term, since it is more neutral in its connotations than "symbol" and more widely applied in biology. In this article I will apply this word and similar ones broadly to anything that can be used to "mark" each individual or group (the "sender" or "signaler") with its society membership in a manner understood by conspecifics (the "recipient": Sherman et al. 1997), whether that information is represented or communicated intentionally or not. There can also be society-specific *group-coordination signals* that serve to assemble and mobilize members in relation to other societies. An example is the secretion that demarcates each weaver ant colony's territory in a unique way (Beugnon and Dejean 1992). Signal systems such as language potentially serve both functions. Human societal labels may have originally evolved from group-coordination signals, as I will describe.

Human labels are more diverse and complicated than those of insects and are subject to greater modification through learning. A few common societal labels are body markings, hairstyles, songs, stories (often including fictionalized accounts of a common ancestry), food preferences, values, rituals, physiognomy, and even such subtleties as how we hold our heads while listening to one another (Lorenz 1963; Marsh et al. 2003). Locations or other objects of importance to the society can also be "marked"—for instance, a sacred site or totem pole. A surprising range and number of traits, whether functional or arbitrary—including many often treated as elements of "style" (Wobst 1977)—can be of value so long as aberrations signal an observer that something is amiss. "Those features make it easy for us, unlike wolves and chimps, to recognize members of other groups at a glance" (Diamond 1992:220)—though other senses, especially hearing, play a role.

The documentation of societal labels can be a more reliable criterion for delineating the boundaries of a society as a whole than describing different relationships of trust or self-interest, or regulation by a polity. Even though the word "society" is often defined based on cooperation (e.g., Wilson 1975), cooperation among a society's members isn't a given. Each member's ensemble of friends is limited and shifting (Apicella et al. 2012). An individual can favor some society members over others, and even entirely avoid members hostile to its interests, in an ever-shifting nexus of social interactions. Taken in aggregate, these alliance networks extend mostly to a society's boundaries, yet distinguishing large societies in this way would be difficult.

My focus will depart from the tradition of research on cooperation within societies, which can be a riddle when a society grows large enough that members do not know each other. Cooperation for groups within societies, and to some extent for societies as a whole, may be based in part on labels, however, even when the groups in question are transient or shifting (Antal et al. 2009; Axelrod et al. 2004; Efferson et al. 2008; Hammond and Axelrod 2006; Ihara 2011; Riolo et al. 2001; Spector and Klein 2006).

My Emphasis on Hunter-Gatherers

To examine the origins of the anonymous societies among humans, I focus on "simple" hunter-gatherers—egalitarian societies consisting of multiple roaming bands dependent on dispersed or seasonally available foods, whose fission-fusion system, in which individuals and groups variously split apart and join with one another over time, is considered to best match the behavior of our hominin ancestors (Grove et al. 2012). That is because our immediate relatives in the genus *Pan*—bonobos and chimpanzees—also demonstrate this trait, living in societies known as *communities* where animals move between shifting groups called parties (Aureli et al. 2008).[2] To emphasize the primacy of this fission-fusion condition over egalitarianism, hunting, gathering, and proficiency with tools or fire, I will hereafter use the term *multiband society* when referring both to these hunter-gatherer societies and to the societies of more distant human ancestors whose members could have interacted and foraged in a different manner.

Any hunter-gatherers existing today have to be treated cautiously as a model of human behavior in our evolutionary past, among other reasons because contact with other kinds of societies will have had its effect, in some cases going back millenia (Henn et al. 2011). Still, some universal features of multiband societies can be inferred to have been present in human ancestors. I will argue that the minimally segmented character of all "simple" hunter-gatherers would cause social identifications in multiband societies to be directed with great force at the society taken as a whole (e.g., sensu Swann et al. 2012). This would make their societal bonds as clear cut, if not more so, than we find in other kinds of human society, wherein bonds are formed not just with the whole society but with numerous subdivisions within it. Under suitable conditions, "complex" hunter-gatherer populations (typically less-egalitarian societies that harvested consistently rich, natural renewable food supplies) could become variably more sedentary, segmented, and populous, further increasing their prospects for widespread, fully realized anonymity—a propensity that would also come to the fore with the advent of agriculture.

Part 2. A Nested Hierarchy of Human Knowledge of Other Individuals

One way in which humans and social insects differ is that for most insects, anonymity is complete. No ant worker has been shown to recognize any member of its society as an individual, though it might discriminate types, i.e., "castes," of ants, such as queens or

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[2] Although hunter-gatherer bands are relatively stable and wide ranging, and disperse into foraging teams that return to the current camp nightly, they may be homologous to chimpanzee and bonobo parties (Furuichi 2009), which is how I treat them in this paper. Multiband societies are homologous to the communities of *Pan*, which likewise are bounded societies. Layton and O'Hara (2010:108) reach this conclusion, too, albeit on the erroneous basis of large networks persisting because of "the need to keep membership options in a number of bands open" rather than as a direct product of shared identity. Thus a "human society is essentially a chimpanzee community with exploded fission-fusion" (Foley and Gamble 2009:3277). *Pan* communities are presumably homologous in turn to relatively compact societies of more distantly related primates. If so, and given the conclusion of Aureli et al. (2008) that there is no justification for treating fission-fusion societies as a distinct category, they could probably also be called "troops" rather than the equivocal "communities." Note that "higher fission-fusion" sensu Aureli et al. (2008) is the only form of fission-fusion I will address.

soldiers. Humans know each other with varying degrees of familiarity. As with other social vertebrates, then, our interactions among society members are *individualized*—that is, we form “variable relationships built on histories of interaction” (de Waal and Tyack 2003:x). Because of the size of human societies, however, “under ordinary conditions, people simply do not pay enough attention to individuate each other” (Fiske and Neuberg 1990:21), even those we work with (Machalek 1992). This means that close relationships, being cognitively taxing, are developed selectively.

When Dunbar (1993) presented the notion that humans cannot bond with more than about 150 people, a common misunderstanding arose owing to inconsistencies in how the idea has been expressed. This number has little bearing on the total *size* a society can achieve: “Not all these individuals need to live in the same physical group” Dunbar (1993:681) wrote, by which he meant live in the same band of a fission-fusion society, whose dynamics place demands on behavioral flexibility and memory (Amici et al. 2008; Lehmann et al. 2007). For humans and other primates (for which the number is smaller than for humans), this maximum can be understood as an approximate limit to the intimate alliances an individual is able to form *within* its society. No primate living with more than its immediate family has a society composed entirely of kith and kin (Kudo and Dunbar 2001; Lehmann and Dunbar 2009); this is why the word *coalition* is normally applied to within-society groups (Mesterton-Gibbons et al. 2011) Nor does each member’s alliances need to be forged with any particular constituency within the society, and certainly not one requiring its own cultural labels (though in humans some memberships may have such labels). To create indefinitely large human societies, then, the coalitionary networks of the different members have to be welded together (Dunbar 1993).

Coalitions are one level in expanding circles of social connections that I order below in terms of intimacy. Notice that none of these levels above the family need match the social units that an ethnographer might document, such as a hunter-gatherer band or a temporary hunting party, though these units have their own properties, optimal sizes included (Caporael 1997; Hamilton et al. 2007; Zhou et al. 2005). Nonhuman primates are not known to employ the last two, most impersonal forms of connection:

- dyads (particularly married couples)
- nuclear family
- extended family
- support clique or “sympathy group” (the few individuals one relies on most: Buys and Larson 1979; Roberts 2010)
- primary network (all close ties or coalition members, limited to about 150: Dunbar 1993)
- weak ties (potentially in the hundreds: Granovetter 1983)
- recognized individuals (e.g., facial recognition; potentially hundreds up to a few thousand: Richard Russell, personal communication, 2012)
- tracked identities (people one hears about but does not necessarily recognize)
- individuals showing the correct labels (all society members)

Proceeding outward through these circles, each person connects with incrementally less knowledge of other individuals in larger networks that, beyond the nuclear family, need not be congruent with the network of any other society member. Trust generally decreases as one goes down this list to weaker levels of intimacy and knowledge—although, in a skill unique to humans (Bernhard et al. 2006; Milinski et al. 2002), the reputations of others, gleaned in tracking the identities of individuals by means of language, can be a powerful aid in building successful relationships (Nowak and Sigmund 1998).

Societal labels, the final category, provide the solidarity upon which complex systems of altruism can be created, making possible anonymous societies large enough to build civilizations. Among hunter-gatherers, this category is typically congruent with an ethnic group. This level of identification need not be distinct. Societies small enough to be composed of known individuals exist, often as remnants of once-larger groups. In them, labels are still essential for ingroup bonding (Part 3) and to avoid identification errors (Part 5).

Our knowledge of others is not always restricted to members of our own society. Humans can recognize individual foreigners, even marry them on occasion. In hunter-gatherers, such unions occur less easily and often than intragroup marriages, typically as part of reciprocal exchanges that take place during gatherings ritualized in such a way as to otherwise maintain each group's identity (e.g., Fair 2001; Lourandos 1997). Knowledge of foreigners may be used for strategic purposes bearing on intergroup relations, as it is in nonhuman primates (Bergman 2010; Cheney 1987; Furuichi 2011).

Part 3. Anonymity and Labels for Societies as Basic Human Attributes

The evidence in this section will show the implausibility of the following argument: that the formidable associations humans forge between societies and their labels are simply a fortuitous by-product of a generalized human skill with symbols that, by pure accident, enabled our societies to explode in population after the origin of agriculture. Societal labeling is instead a cognitively ineradicable, presumably ancient adaptive syndrome (Hewstone et al. 2002) dependent on "the contents of the neo-cortical system (e.g., beliefs, expectancies, norms) [that] are highly resistant to modification or change" (Macrae and Bodenhausen 2000:94).

Advantages of Societal Labels

Dunbar (1993) documented that adding to the size of one's alliances comes at a substantial cognitive cost. By contrast, labels expressing the group prototype are easily preserved in long-term memory and can be applied to indefinite numbers of individuals with no additional requirement for gray matter and no obligation to maintain a relationship. Labels thereby reduce the cognitive load of social surveillance (Clark and Chalmers 1998; Rowlands 1999; Wilson 2005), empowering members to concentrate on their coalitions. Nor need a "group tag" be elaborate or difficult to create. Though labels vary in complexity (Pettitt 2012), those useful as badges of membership require a "limited signal-detection capability" (Riolo et al. 2001:443) and need only elicit a simple, discrete kind of response characterizing social-insect recognition systems (Tsutsui 2004).

It is not true, then, that "extra-strong group delimitations" can arise only in "advanced" species based on complex emotional mechanisms, as van der Dennen (1991:237) proposes. To the contrary, the use of "symbols to enforce or reinforce a particular view of 'what society is'. . . has the effect of making social tasks less complex" (Gamble 1998:431). I propose that the cognitive cost of increasing group size without labels, but rather purely through recognizing all the members or by maintaining alliances (often equated with grooming in primates and gossiping in humans: Aiello and Dunbar 1993; Dunbar 1993), or both, has hampered the evolution of nonhuman vertebrate societies. Well-integrated societies beyond 200 members have never been achieved by these means even if the greater population would be ideal for the success of their members, for example in spotting or deterring predators (Dunbar 2001) or foraging (group predation: Moffett 2010:31–33).

It is a mystery then why so few vertebrates have gone the insect route, using the low-cost cognitive trick of employing group-identity labels to create larger social groups, an option potentially available to many species by social learning (Part 5). Social insects attain enormous group sizes despite the potential for zero relatedness in some colonies (Moffett 2012; Pedersen et al. 2006) and the occurrence of selfish behaviors, which have to be dealt with through policing and are mostly absent from their larger societies (Hölldobler and Wilson 2009). For good reason then Darwin (1871:145) wrote that "the brain of an ant is one of the most marvellous atoms of matter in the world, perhaps more marvellous than the brain of man." Yet presumably because their societies are not only defined by labels but completely lack recognition of members as individuals, the brains of ant workers tend to shrink as societies increase in size, and not grow larger, as do the brains of social vertebrates (the exceptionally complex leafcutting ants buck this trend: Riveros et al. 2012).

How do human identity labels work in practice? On meeting others, people immediately encode their race and other societal labels considered of prime significance, along with their sex and age (Cosmides et al. 2003; Kurzban et al. 2001). The available data suggest that once the prevailing social labels are learned, this encoding is automatic and mandatory (e.g., Fiske 2005), indicating an innate predisposition. Labels therefore act as classic sign stimuli (Tinbergen 1951). Sufficiently powerful signals can trump alternative choices, race included (Cosmides et al. 2003; Kurzban et al. 2001), however, suggesting that race is one of an indefinite number of labels people can encode depending on their exposure to different signals and cues, and the norms and behavior of those around them. Kurzban et al. (2001) propose that this cognitive machinery evolved to detect coalitions within a society; but in hunter-gatherers, such coalitions develop fluidly among individuals who are unlikely to share labels specific to an alliance. I submit that our instinctive detection of labels originally represented a response to members of outgroups, which, until the emergence of segmented social groups in the Neolithic, almost invariably would have belonged to different and distinct societies.

Categorization and Labeling of Ingroups and Outgroups: Antecedents among Primates and Importance in Human Development

Are there antecedents among nonhuman animals for societal labels and the categorization of group members? Many vertebrates likely classify information about conspecifics, perhaps tagging them with categories to which a language-using species would give names, such as "group member" (Zayan and Vauclair 1998). Baboons can predict the behavior of troop members by categorizing them by rank, family, and coalitionary relationships (Seyfarth and Cheney 2013a). Indeed, "in the mind of a baboon, social categories exist independent of their members," Seyfarth and Cheney tell us (2013b). Rhesus macaques not only distinguish society members from outgroup animals but valence outsiders as "bad," suggesting these dispositions pre-date language and other human-specific cognitive functions (Mahajan et al. 2011). It isn't known, however, whether primates form societies by members recognizing and bonding to the group as a whole (to form the kind of imagined communities described by Anderson 1991) rather than by bonding to other members individually (i.e., whether they form common identity groups or common bond groups: Prentice et al. 1994).

In humans, recognition of ingroups and the development of favoritism toward those groups begins before children are taught about their group, which "may explain, in part, why conflicts among different language and social groups are pervasive and difficult to eradicate" (Kinzler et al. 2007:12580). Indeed, intergroup preferences (negative attitudes toward outgroups included: Bigler and Liben 2006) "are present at adultlike levels in early childhood" and do not arise, as commonly assumed, from "a slow-learning system culling the environment for regularities" (Dunham et al. 2008). Results like these, along with the information showing other primates (despite having individual-recognition societies) employ "nearly identical cognitive mechanisms" in their intergroup interactions (Mahajan et al. 2011), indicate that ingroup-outgroup biases are ancient and fundamental to our survival (Dunham et al. 2008), forming part of the "core to our species," as Mahzarin Banaji concludes (in Culotta 2012:827).

In a process apparently unique among vertebrates, however, humans learn a foundation of arbitrary symbols to frame their identification with ingroups starting early in their development. For instance, the understanding of a flag as a symbol of a society increases as a child ages; children are aware that flag burning is morally wrong by the time they are six (Helwig and Prencipe 1999; Weinstein 1957). Monkeys can be taught to use labels (Addessi et al. 2007), including to associate arbitrary objects with ingroup or outgroup members. They demonstrate the same increased vigilance toward the objects as they do toward the foreign individuals themselves (Mahajan et al. 2011), but the importance of labels to them under natural conditions is much less certain. Apes sometimes carry out culturally significant acts (Boesch 2012; McGrew 2012), which in some cases "come close to reflecting shared meaning based on arbitrary symbols" (van Schaik et al. 2003:102). One of these signals, the pant hoot, will be discussed as a possible incipient societal label in Part 5.

The Social Psychology of Labels and Ingroup/Outgroup Distinctions

Social psychologists have long had an interest in labels and ingroup/outgroup distinctions. In this section and later on I highlight a few of their key ideas. Some of these derive in part from studies of groups living in multiethnic state societies. My assumption will be that these results apply with equal if not greater force to societies taken as wholes, particularly when describing ethnically uniform multiband societies.

Spicer (1971:795–6) concludes that "the essential feature of any identity system is an individual's belief in his personal affiliation with certain symbols, or, more accurately, with what certain symbols stand for." Societal labels serve two primary functions at the community level. Firstly, exposure to them increases harmony and coordination within the society, making teamwork possible outside normal coalitions

—even between individuals who dislike each other (e.g., Hassin et al. 2007; Hogg and Turner 1985). Aiding in this sense of group loyalty are symbol-driven rules of social engagement, which have allowed distantly related members of hunter-gatherer and tribal societies to respond to each other as if they were kin (e.g., Barnard 2010). Additionally the labels are modified, and perhaps generated in the first place, to make sense in reference to other groups. Writing about Aboriginal totems in 1912, Durkheim (1995:208) described labels as “the flag of the clan, the sign by which each clan is distinguished from the others, the visible mark of its distinctiveness.” Although Royce (1982:12) postulates that “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 (social) strategies based on ethnicity,” it is probable, though apparently not yet investigated (Robert Kurzban, personal communication, 2012), that just as central to the human condition as the desire to belong to an ingroup (Baumeister and Leary 1995) is a psychological need for outgroups, if not an outright opponent or enemy (van der Dennen 1991), in part to generate and clarify label-maintained boundaries (Barth 1969; Jones et al. 1984).

Gilbert and Hixon (1991:509) write that “the ability to understand new and unique individuals in terms of old and general beliefs is certainly among the handiest tools in the social perceiver’s kit.” At the level of interactions between individual group members, labels are tools readily employed to achieve what is known in social-identity theory as *depersonalized attraction*, which is an ability to see others (as well as oneself, i.e., the *collective self*) not so much for their idiosyncrasies but rather “through the lens of the prototype” that arises from cultural expectations (Hogg 2006:118; Turner et al. 1987; cf. Swann et al. 2012). By employing numerous labels in accepted ways, humans constantly reassure one another of their shared cultural values. This ensures that individuals who do not know each other will behave acceptably as “our kind” (Barth 1969; Cialdini 1993; Henrich and Boyd 1998; Lamont and Molnar 2002; Wobst 1977), thereby reducing uncertainty (Hogg 2000). Cultures differ in their tolerances of personal expression in each label. Individuals not sufficiently matching overall expectations are stigmatized, pressured to change, ostracized, or treated as foreigners, depending in part on the kind and degree of deviance (Kurzban and Leary 2001; Liebert and Starks 2004).

In terms of identifying and relating to outsiders, humans are “innately prone to detect and act upon symbolically marked group memberships” (Richerson and Boyd 1999)—that is, to be ethnocentric, a trait that appears to be omnipresent in our species (Brewer 1979). When people make errors in identification, they do so on the side of caution, being more likely to misidentify members as belonging to an outgroup than they are to do the reverse. This *ingroup-overexclusion effect* (Castano et al. 2002) may arise because of the oversimplified label-focused schema that humans readily employ with outgroup members, who are perceived (much like one’s own group members, but to a more extreme degree) in terms of a stereotype: a shared and inflexible conception activated by selective symbolic attributes (Brown 1986; Devine 1989; Royce 1982), so they do not need to be individualized (Judd and Park 1988), saving mental energy. Stereotyping, and the prejudices that invariably accompany it, occur “outside conscious awareness and control” (Banaji and Bhaskar 2000).

Though strongest with outgroups—which are seen as more homogeneous than one’s ingroup (Corneille et al. 2001) such that outgroups appear to act like single, intentional entities (Bloom and Veres 1999)—the loss of attention to detail described for both ingroup and outgroups leads to an exaggerated perception of similarities among the members within these groups and sharpens the perception of differences between the groups and the boundary that separates them (the *accentuation* effect). This fosters, as Krebs and Denton (1997) put it, "social illusions" that usually include ingroup superiority and outgroup prejudice. Ingroup favoritism and defense appear to have a neurobiological basis, being enhanced by the neuropeptide oxytocin, which promotes trust by dampening amygdala activity and up-regulates circuitries involved in empathy (De Dreu 2011; De Dreu et al. 2010, 2011).

Qualities of Different Societal Labels

The most effective labels are discrete and unambiguous signals difficult to replicate by outsiders, such as freeloaders trying to enter a society. Languages rank high in this regard by inspiring irrational normative sentiments (Chambers 2008), and they are almost impossible to reproduce perfectly except by persons exposed to them as children (Giles et al. 1977; van den Berghe 1981). That they serve as labels is suggested by the fact that "both the exquisitely developed imitative capacities of children, and the perceptual abilities of adults, go beyond what would be necessary for a very high level of vocal communication" (Fitch 2000:265). Thus people "may be perceived, trusted, evaluated, and heeded differently" based on accent alone (Cohen 2012). As Nettle (1999:219) concludes, then, "the largest social groupings—tribes or nations—are demarcated by a language or at least a dialect boundary."

It is essential to realize that, as with other cultural labels, the characteristics speakers pick out as symbols of their group identity are subjective, or at least do not need to match the classifications of academics. Hunter-gatherers may abhor minor variants in a dialect of their language easily understood when spoken by neighboring societies, at the same time as they embrace a more radical diversity of dialects or other cultural variations in their own society. What linguists perceive as one language, the speakers interpret as two—or vice versa (Dixon 1976). In defining society boundaries, only the latter opinion about cultural features is important: "one must look at cultural artifacts as having meaning for the people who use them" (Royce 1982:45).

Language is indeed powerful as a label, but the effect of other societal labels, being additive, is powerful too. It is not the case that "talk is cheap and so is hair dye," as Richerson and Boyd (2005:213) expressed it. Even a mute interloper can hardly replicate all the labels used in a society, within the range of variation for each trait allowable by its members, hair dye sometimes one among them. (Indeed, might hair growth that requires styling, a trait unique to humans, have evolved for its value as a label?) He or she will quickly be unmasked. This explains how African pygmy cultures have remained intact after losing their original languages and adopting the languages of pastoral neighbors over the past 3,000 years (Bahuchet 2012). Also, not every nonlinguistic label is easier to duplicate than language, or less important. Many religious rituals or rites of passage such as body scarification are costly signals, as difficult to fake as any dialect (Irons 2001; Sosis 2003; Sosis et al. 2007), ensuring the information communicated is honest (Zahavi and Zahavi 1997) and signaling a depth of commitment to group responsibilities that dialect can't convey (Hayden 1987).

What of clashes between ethnicities when there are differences in physical appearance as well as in learned labels? It has been assumed that racial differences became social labels only after recent migrations brought physiognomically distinct populations into contact (Cosmides et al. 2003; Van den Berghe 1981; Nettle and Dunbar 1997). In support of this argument it is a suggestive finding that accent takes priority over race in bonds formed by preverbal infants, who distinguish languages at 5 months of age (Nazzi et al. 2000) and preferentially trust strangers who have their parents' accent by the time they are 4–5 years old (Kinzler et al. 2010).

Still, I suspect that racial clashes would have begun in the Paleolithic. Today "some geographically adjacent [hunter-gatherer] groups are as different genetically from one another as are the major ancestral groups of the world" (Bowles and Gintis 2011:99). This could reflect the immense span of time, taking in the entire Paleolithic era, in which human groups migrated around Africa, encountering societies that would have seemed sharply different to their own. People still living in what appear to outsiders to be ethnically uniform parts of that continent and elsewhere continue to be amazingly skilled at discerning subtly divergent groups, even when, as with linguistic differences, the distinctions being made appear trivial or subjective to outsiders.

It is possible our ancestors' ethnic discriminations originally included Neanderthals and other competing hominin lines. Aggressive responses to these "true" aliens (Smith 2013; Stringer 2012) might have transferred to our own kind by pseudospeciation, when the mind treats cultural differences as species characteristics. Such beliefs are linked with the conviction that differences are immutable (Martin and Parker 1995). Gil-White (2001) proposes that humans have, in fact, exapted the part of the mind that identifies nonhuman animal species for just that purpose. Indeed, xenophobia, in its extreme forms, has brain-function correlates,[3] eliciting neural patterns consistent with fear and disgust (Douglas 1966; Kelly 2011). This is indicated by activity in the amygdala and insula, respectively. Meanwhile, the medial prefrontal cortex, normally involved during interactions with humans, doesn't activate, as if the person were confronting an inanimate object (Harris and Fiske 2006).

Entire outgroups, physiognomically distinct or not, may be dehumanized. It is common practice for hunter-gatherers and tribal cultures to call the members of their own society "Human" or "People" in their own language (Read 2011), while labeling outsiders as subhuman or animal. This would make it advantageous, even as necessary for survival as it is for a displaying animal, for each person to broadcast the correct identity signals as a show of normative conformity (Henrich 2004a). Such self-stereotyping (Smith and Henry 1996) in a sense confirms one's status as a "real" human being, often more than the relatedness that genetic analysis reveals.

A similar kind of passion can be triggered by a variety of identity labels, even in isolation, as shown by the emotional power of a flag to a patriot, or a swastika to a Holocaust survivor (Bar-Tal and Staub 1997; Butz 2009; Geisler 2005; Kemmelmeier and Winter 2008). Consider the importance of a society having a name for itself as an especially powerful label (e.g., Johnson 1997): even six-year-old children prefer unfamiliar individuals associated with the name of their country (Tajfel et al. 1970). Such names and other labels increase people's psychological identification with their society (e.g., Feshbach and Sakano 1997) in a way that is "dominated by a simple

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[3] *Xenophobia* has unfortunately been used differently by different authors. Judging by the Oxford English dictionary, the word should indicate an aversion to foreigners as a class (i.e., whether or not they have been encountered previously as individuals), rather than a general fear of any stranger (unfamiliar individual).

good-bad, like-dislike evaluative dimension" and is represented by "unthinking, reflexive, affective responses to remote attitude objects, rather than by calculations of probable costs and benefits" (Sears 2001:15). The result, combined with depersonalized attraction to other members and group-level emotional responses (Smith et al. 2007), is a devotion to, and willingness to take risks for, the system as a whole. Instead of being viewed as a collection of individuals, the society is reified (as outgroups also can be: see previous section) as if it were an individual person with its own identity (Hamilton et al. 2002), and, like the members within it, is often treated as an extension of the family (e.g., the "Fatherland": van der Dennen 1999). Included are beliefs in the members' shared history or common ancestry that are validated by the identity symbols. Such nationalism is manufactured efficiently by states, but it is also strong in multiband societies (Johnson 1997).

Part 4. Multiband Societies

Treating Societies of Hunter-Gatherers as Well-defined

The findings I have described from social psychology and other fields indicate that the human mind is hardwired to form discrete groups. Did hunter-gatherers and their Paleolithic precursors live in societies—groups with nonoverlapping memberships? Were these bounded by the societal labels just discussed, and thereby able to grow large enough that all the members might not recognize each other as individuals?

Hunter-gatherers occupy roving bands typically of about 25–30, units small enough for members to know one another well. Such bands, also called overnight camps, local groups, or hordes, seem for economic reasons to be a universal part of hunter-gatherer life, "a basic minimum social structure" for hunting and gathering (Birdsell 1968:248) that is optimal for decision-making in egalitarian settings (Johnson 1982).

That bands are part of larger, label-defined societies in which in many cases "no individual will know all other members" (Layton and O'Hara 2010:104) is expressed decisively by anthropologists who perceive a central role for multiband societies in hunter-gatherer life. Though the groups of bands are normally spread out and thus rarely seen as a concrete "formed entity" (Stanner 1956:74), they maintain the same sense of ingroup and outgroup as the relatively sedentary tribes, chiefdoms, and states formed by other humans. In all these societies, the movement of individuals is tightly controlled so as not to alter a society's boundaries (Barth 1969; Pagel and Mace 2004). The most common of about a dozen choices of name used to describe these hunter-gatherer societies has been "tribe," which is unfortunate because this term normally is applied to cultures distinct from the hunter-gatherer way of life (Richerson and Boyd 2005:277–278), confounding hunter-gatherers with more sedentary cultures engaged in herding or horticulture. Even the phrase "band society" (e.g., Lee and Daly 1999) could easily confuse the reader into assuming that "society" refers to one band, rather than several, which is why I took the liberty of tweaking this name to "multiband society."

The most cited researcher on the topic wrote that "both the natives and the anthropologists have recognized the dialectical tribe [i.e., multiband society] as a reality. . . . So if you are concerned with relationships, it is *the* biological evolutionary unit" (Birdsell 1968: 232, 246), a point of view taken by Tindale (1974) on first mapping multiband societies in Australia. Dixon (1976:231) discusses this matter for the Aborigines of Queensland:

> A tribe appears in fact to be a political unit, rather similar to a "nation" in Europe or elsewhere—whose members are very aware of their "national unity," consider themselves to have a "national language," and take a patronizing and critical attitude towards customs, beliefs and languages that differ from their own.

Studies from different parts of the world similarly report that the hunter-gatherers themselves claim to be united across bands into named groups with a common language and cultural identity and have, as Dixon writes, a patronizing attitude toward other groups; as Wiessner (1977:xix) notes, "even San [Bushmen] of a different language group . . . are foreign people and to be regarded with suspicion." Many hunter-gatherers apply their word for human specifically to the members of their own local society, as mentioned above.

The multiband societies of egalitarian foragers range in population from a few hundred to about 2,000 (Arnold 1996; Birdsell 1968; Irwin 1987; Marlowe 2010). Consider the Hadza, a society of hunter-gatherers from Tanzania. Numbering about one thousand, the Hadza share many societal markers and think of themselves as one people despite the fact that they live in small bands. Many Hadza have not traveled to the far side of their territory and do not know the Hadza there (Coren Apicella, personal communication, 2012).

As with all human societies, multiband societies, although well-defined, are *permeable* rather than being completely *closed* in the manner of ant societies (for these and other terms see Moffett 2012). The degree of closure is determined by the permissibility of movements between societies (e.g., Southwick et al. 1974). Tightly regulated transfers are typically required for reproduction, in some ways comparable to gamete movement between organisms. Thus chimpanzee societies, among whom subadult females shift to new communities as part of the reproductive life cycle, are still described as "closed" by primatologists (Wrangham 1987). Although multiband societies can be large enough to represent stable breeding populations (Wobst 1974), transfer between societies, typically involving marriages carried out under stringent, ritualized conditions, was, as mentioned earlier, allowed.

Controversies About Hunter-Gatherer Societies

In the middle of the twentieth century, some researchers, notably Berndt (1959), Hiatt (1996), and Meggitt (1962) in regard to the Aborigines, denied that societies of hunter-gatherers are bounded units; see also Gutkind (1970) and approaches to group boundedness in Peterson (1976). I won't attempt to review their arguments, which often seem to bear on the misapprehension that a distinct society cannot show some permeability, or on the changes brought about by the cultural erosion after European contact (Birdsell 1970). Sutton (1991) and Blackburn (2002) also claim Dixon overstates the case with his nation analogy, cited in the previous section. Certainly, *nation* connotes a state level of organization and control that can never apply to multiband hunter-gatherers. But Dixon's view has less to do with governance than with how Aborigines originally identified themselves—which is the frame of reference that should be used to deduce society boundaries—and he stands by this analogy (Robert Dixon, personal communication, 2012). It is certainly true that nationalism per se is merely a "phenotypic expression of the deep in-group/out-group structure inherited from human prehistory" (van der Dennen 1999:454). Smith (2010:20), an authority on nations, defines *national identity* in a manner that could apply to what I would call the "proto-nations" of hunter-gatherers: as "the continuous reproduction and reinterpretation by the members of a national community of the pattern of symbols, values, myths, memories and traditions that compose the distinctive heritage of nations, and the variable identification of individual members of that community with that heritage and to its cultural elements."

By including "variable identification," Smith (2010:20) allows for the possibility that society members are not always homogeneous in their symbols, values, myths, memories, or traditions. Because bands are only intermittently in contact, the perception of hunter-gatherers that their societies are tightly knit may not always be accurate (as is often true of perceptions of one's ingroup: MacDonald 2001); distant bands may be more different than their members believe (Dixon 1976). Such misinterpretations or ignorance would allow regional variations to exist, and other variations might be recognized and tolerated. The boundaries between that society and the societies surrounding it would stay intact (but see Part 6).

Perhaps because of the semantic issues and the controversies over their existence, multiband societies, by any name, have been on the decline as research subjects. It has become common to claim that societies of hunter-gatherers either do not exist or are unimportant, or to write so ambiguously that ipso facto the band becomes the primary unit of hunter-gatherer social identity. Boehm (2012a:343), for example, writes that "over the last 12,000 years we humans have increased the sizes of our social communities from bands to agricultural tribes to chiefdoms to nations." Hamilton et al. (2007) refer merely to "populations" of hunter-gatherers, while Hill et al. (2011:1286) state that they show "large interaction networks" and "metagroup social structure." There have been notable exceptions in the past few years, among them Bahuchet (2012), Bowles (2009), Brewer and Caporael (2006), Marlowe (2005), and a description of regional networks by Johnson and Earle (2000) that implies that hunter-gatherer societies may be bounded. But for the most part even these authors are equivocal about the importance of societies among hunter-gatherers and mention them only in passing.

Did Some Hunter-Gatherers Lack Societies—that is, Autonomous, Bounded Groups?

In extreme cases, hunter-gatherers have been portrayed as if they lack societies entirely (Ingold 1999) or live in an "unbounded social landscape" (Gamble 1998:443). The possibility that early humans formed open groups rather than definable societies was first put forward by Reynolds (1966). Perhaps languages and other cultural traits fluidly overlap among hunter-gatherers, shifting gradually from one band to the next.

The most convincing possible exception to the notion of modern hunter-gatherers belonging to societies are the Aborigines of Australia's Western Desert, where resources are scarce and population densities low. There, hunter-gatherers such as the Mardu have been described as having no distinct group boundaries over huge areas (Tonkinson 2011). If this was true in prehistory and not the result of recent cultural disruptions, the Mardu could demonstrate that functional human societies, groups with unambiguous memberships, may not be sustainable in multiband cultures under situations of extreme dispersion or resource scarcity (though theory indicates that the opposite condition of extreme group identification is to be expected: Ihara 2011).

I am skeptical of this. Our species is intensely tribal (Brewer 1979, 1999; Glazer and Moynihan 1975; LeVine and Campbell 1972), a trait shared with other primates that form bounded societies (Southwick et al. 1974; Wrangham and Peterson 1996). Additionally, in many other animals that show the strong fission-fusion dynamics of hunter-gatherers, such as hyenas, bats, and, of notable importance from the standpoint of evolutionary parsimony, the bonobos and chimpanzees, the fission-fusion parties are portions of distinct societies (there are exceptions living in the open ocean: Randić et al. 2012). As with hunter-gatherers, the boundedness of such societies is not always easily perceived, but sharp separations in group memberships are consistently there just the same. Chimpanzee societies are small enough that "all members know each other individually" (Lehmann et al. 2007:614), yet they rarely if ever come together at one place and time. Fission-fusion groups (parties) are the only social units researchers see on a daily basis. As a result, it took years to recognize that chimpanzees scattered among fission-fusion parties could nevertheless belong to one society "politically united against its enemies" (Rodseth et al. 1991:238). Documenting the even larger and more dispersed multiband human societies could be similarly problematic (Birdsell 1970).

One reason to expect an especially strong and focused commitment of hunter-gatherers to their societies, their dispersion into bands notwithstanding, is that their lives are relatively unstratified and unsegmented. This means a hunter-gatherer's social ties are not partitioned among numerous kinds of groups, as relations are for most people today. This enhancement of one's "group self"—"a (temporary) transformation of the conception of self from an individual to a group level" (Ellemers 2012:848)—is a relatively recent human innovation (Caporael 1997) in which individuals maintain an identification with ethnic groups, workforces, clubs, religions, social classes, political parties, among others, each of which may have its own labels and will likely accommodate only a portion of a person's alliances. In short, there are many more crosscutting ties (Allport 1954) than are found in the more homogeneous multiband societies. Today's within-society groups can be large enough for most members not to know one another and poorly bounded enough to make individuals difficult to categorize (Bodenhausen and Peery 2009), and individuals can at times develop a stronger allegiance to one of these groups than they do to the society (e.g., Swann et al. 2012). Outside of kin groups (which are spread across bands: Hill et al. 2011), social identities are by comparison straightforward in small foraging societies, whose members have neither the organizational need (e.g., Johnson 1982) nor possibly the psychological motivation (Brewer 1991) to differentiate themselves further. Consider the lack of separation of church and state for hunter-gatherers, who do not distinguish their spiritual beliefs from other aspects of their social identity. For them, "religious rituals and beliefs are the language and method of many forms of cultural transmission," reflecting the concerns of the society as a whole (Finkel et al. 2010:287).

The "group self" of pre-contact multiband societies would therefore have been focused on the immediate family and the society, and little else. At the low population densities typical of the late Pleistocene and many recent hunter-gatherers (Atkinson et al. 2008a; Binford 2001), encounters with unfamiliar societies would therefore have been momentous. Whether seen before or unfamiliar, an outlier's symbols, even if subtly different to our jaded eyes, would evoke an immediate visceral reaction of anxiety or fear, a response far in excess of what we expect for most intergroup encounters today (e.g., Stephan and Stephan 1985).

Society Alliances

Bonobos will share food with individuals from other societies (Hare and Kwetuenda 2010). Sharing between societies could be part of our common heritage with that species, though trading—and theft—may well have become more elaborate early in hominin evolution. Most importantly, humans show complex forms of group-level cooperation between societies not seen in other animals. These did not mitigate the societal distinctions I have described. Exchanges of genes and culture between multiband societies were largely internal (Barth 1969; Bowles 2012), with most individuals staying in a circumscribed area (Hewlett et al. 1986; Mulvaney 1976). Yet exchange networks and alliances between societies could be a necessity, depending on population density and the resources accessible to each. Alliances extended from one society to the next (Wobst 1976), for example across Australia, influencing band mobility (Whallon 2006). Relationships were often orchestrated by formal gatherings with feasts in seasons of plenty (e.g., Fair 2001; Lourandos 1997).

Although it may not always have been the case that "transactions beyond the local groups, and certainly beyond the ethnolinguistic unit, were fraught with danger, mistrust, and exploitation" (Henrich et al. 2010:1480), interactions had to be managed carefully to assess threats and maintain society distinctions (Richerson and Boyd 1998). Newly introduced labels would have been treated with suspicion, yet attractive ones (e.g., Jetten and Hornsey 2011), such as the Molonga ceremony that spread across a wide swath of Australia near the turn of the nineteenth century (Mulvaney 1976), were assimilated. In addition to the exchange of marriage partners between many societies, goods and technologies tended to be most readily traded (Rogers 2003). In some cases, reciprocal arrangements were negotiated to enter each other's territories in order to harvest resources in short supply (Cashdan 1983). Transfer of raw materials far from their sources suggests that such arrangements, or perhaps conventional trading, have a deep history (Marwick 2003), with transfer distances increasing in the Middle Stone Age (Feblot-Augustins and Perlès 1992; Stiner and Kuhn 2006)—though theft may also have played a role. Contrary to some views of these archaeological findings (e.g., Foley and Gamble 2009), the distances goods are carried cannot be used as a measure of the size of a group, as shown in more recent times, for example by the transfer chains from one society to the next required for early Chinese pottery to reach Dayak villages in the interior of Borneo (Michael Dove, personal communication, 2012).

Society-level equivalents to the coalitions formed by individuals, intersociety alliances sometimes gave themselves a name, particularly when they functioned in mutual defense, as did the confederacy of Native American tribes known as the Iroquois (Dennis 1993). Such alliances between human societies account for the wide networks of hunter-gatherers described, for example, by Binford (2001), Gamble (1998), and Hamilton et al. (2007), and were aided by language similarities (Newell et al. 1990). They were loose enough that the societies that composed them didn't cede autonomy or territory. Even multilinguality due to intermarriages did not reduce the value of a local language in marking a group's identity (Barth 1969; McConvell 2001). In short, "cultural differences can persist despite inter-ethnic contact and interdependence" (Barth 1969:10)

Part 5. The Origins of Societal Labels

Societal Labels in the Archaeological Record

At some point human ancestors first "transferred the properties of people to objects" (Gamble 1998:443), potentially in the course of creating the original anonymous societies. In the archaeological record, human artifacts, including symbolic representations, burgeon throughout the Old World during the Middle Paleolithic, 40,000–50,000 years ago, presumably as a result of the development at that time of the necessary technologies to produce them (Kuhn et al. 2001; Marshack 1990). This has led some to infer that language and other modern human behaviors arose then as well (e.g., Tattersall 2012). The most convincing evidence of early labels likely to differentiate societies is the beads used for personal adornment across Europe during the Aurignacian period (Vanhaeren and d'Errico 2006). Wobst (1977) first noted that such an abrupt emergence of stylistic elements is expected. Once a type of artifact is modified to convey a message such as group identity, by comparison all such artifacts implicitly contain such information, which could accelerate the drive to differentiate the label in question. Nonetheless, given that many of the symbols employed by recent hunter-gatherers would leave little or no archaeological signature, societal labels might have been in use earlier in the Paleolithic. Possible remnants of early labels include perforated shells that may have been ornaments, ocher that could have been applied as a dye, and, most convincingly, engraved ostrich eggshells believed to be "made in accordance with a mental design shared by a group" (Texier et al. 2010:6183).

The discovery by d'Errico et al. (2012) of diverse San (Bushmen) artifacts indicates how incomplete our evidence has been of early societies, and in my mind makes the theory that cognitively modern humans emerged suddenly (the "human revolution" model: McBrearty and Brooks 2000) increasingly untenable. The cave findings show that the core traditions (sensu Boyd et al. 1997) of San material culture have remained fundamentally unchanged for 44,000 years. Today those traditions include many cultural labels that vary from one society to the next across the San population: emblematic flourishes in styles of clothing, projectile points, ceremonial items, and so on (Wiessner 1983). I would wager that, by being attuned to such markings, the San of 44,000 years ago were just as quick as the San today in recognizing the society (or "nexus": Heinz 1979) membership of unfamiliar individuals. Furthermore, the detailed nature of similarities to modern San material culture suggests it is unlikely the San of that time had Africa to themselves. More plausibly other cultural radiations of multiband societies, with distinctive and perhaps equally stable core-cultural traits and shifting social labels of their own, existed at least that far back in the past, as preliminary population genetic data suggest (Behar et al. 2008; Henn et al. 2011), a hypothesis with fascinating implications.

Antecedents of Societal Labels in Chimpanzees

How did the first symbolically defined societies arise in our ancestors? Possible antecedents to societal labels can be found among other vertebrates. Self-referent phenotype matching (recognizing individuals from their similarity to oneself: van den Berghe 1981) is a widespread skill (e.g., Hauber and Sherman 2001; Parr and de Waal 1999) that remains important to how humans identify ethnicities. When in groups, some animals converge on the qualities of their social signals, although these similarities can reflect fluid shifts in alliance and dominance, or dialects and gradients in the signal, rather than group calls that maintain society boundaries. Examples include vocal matching in birds (Brown and Farabaugh 1997; Feekes 1982; Nowicki 1983), bats (Boughman and Wilkinson 1998), whales (Ford 1991; Nousek et al. 2006), and dolphins (Sayigh et al. 1990). This kind of social learning is prevalent in species with strong fission-fusion because of the benefits in recognizing and coordinating group members scattered across a distance (Bradbury and Vehrencamp 2011).

Social learning was essential in the evolution of human sociality (Richerson and Boyd 2000; Syal and Finlay 2011). Socially learned cultural differences occur between chimpanzee societies (Bonnie et al. 2007; Whiten 2011). Compared with those among humans, these differences are few and in most cases clearly not used to assess affiliations of individuals. For example, the method of clasping hands while grooming differs among communities (McGrew and Tutin 1978; Nakamura and Uehara 2004; Whiten et al. 1999), but, as far as we know, a chimpanzee that clasps another's hand in a novel fashion is not avoided or treated with hostility.

More intriguing are the dialects of the chimpanzee pant hoot. This call expresses excitement, usually by several chimpanzees foraging together. The chimpanzees vocalize in this way over such matters as the discovery of a fruit-bearing tree or the sound of the pant hoots of another community. A pant hoot can be heard for 2 km or more and reveals the caller's whereabouts (Wilson et al. 2001), much like the long-distance calls of social carnivore species that have a similarly strong fission-fusion dynamic (e.g., East and Hofer 1991; Harrington and Mech 1979; McComb et al. 1994). What is important here is that the chimpanzees in a community match each other's pant hoot (Marshall et al. 1999; Mitani and Gros-Louis 1998). The animals thereby achieve group-specific vocalizations, so "individuals hearing a neighbouring male chimpanzee pant hoot are likely to recognize to which neighbouring community the signaller belongs" (Crockford et al. 2004:236). The evidence furthermore suggests pant hoots may shift in quality over time to become most distinctive between communities that are adjacent and thus most often in contact. Herbinger et al. (2009:1389) show that "chimpanzees are able to identify different classes of individuals by their pant hoot vocalizations, as judged by their differential responses to the calls of familiar group members, neighbours or strangers." The apes seem to be aware of the consequences of these encounters. The pant hoots of group members elicit a pant hoot response. Those of neighboring communities lead to screams that do not carry as far as a pant hoot and may serve to alert or mobilize nearby group members. Unfamiliar pant hoots initiate a cautious retreat.

It remains to be proven whether chimpanzees react to the group-specific characteristics of pant hoots, recognize the callers as individuals, or both. If the former, pant hoots probably serve as group-coordination signals (Part 1) to distinguish societies, rather than to identify the group membership of individuals. But I could be wrong about this: In a captive colony studied by Andrew J. Marshall (personal communication, 2012), a chimpanzee "that did not conform to the novel group call was killed by other group members—though I would not want to conclude that the call 'abnormality' was the reason."

It will be worth investigating whether these function(s) could also apply to the bonobo low hoot or legato hoot, likely homologues of the pant hoot (de Waal 1988). Investigation into the cerebral responses of chimpanzees listening to the pant hoots from the same or different communities will be important as well. In a pattern as yet unexplained (though perhaps reminiscent of the way humans can perceive outsiders as objects or animals rather than people: see "Qualities of Different Societal Labels" in Part 3), pant hoots do not cause the right-lateralized activity in the posterior temporal lobe, which is usually associated with "emotional" aspects of the signal brought on when a chimpanzee hears either of two vocalizations typically made by members of the same group when they are intimately close to one another, the grunt or the bark (Taglialatela et al. 2009).

The First Societal Labels

It would be a seamless transition for a hominin to transform a society-specific signal like a pant hoot into a password (Fitch 2000) for group membership, a process which could have begun soon after we diverged from our common ancestor with chimpanzees and bonobos, with their similarly discrete societies. Whenever a community member approached another party or band, it could call out in a normative manner, achieved by vocal learning, as a mark of identification, to assure it wasn't perceived as a threat. The chance of mistaken identity is high in fission-fusion species, which our ancestors undoubtedly were, because individuals need to be suspicious or hostile toward nonmembers and yet do not experience the constant face-to-face interactions of monkeys in a compact troop. In this scenario, dialects would exist before words. Indeed, the first symbols, in the form of societal labels, may have had to evolve to provide a footing for the enhanced intragroup trust and cooperation necessary before rudimentary language could be salient (Cohen 2012; Nettle 1999). A communal greeting, or membership call, would be an element in this protolanguage, which would consist of "nothing more than an inventory of calls expressing unanalysed meanings" (Kirby 2000:14).

This function of societal labels would continue into modern times. Consider an individual who appears unfamiliar because he has not been encountered for months, if not years, as is possible when hunter-gatherer bands are widely dispersed. By exhibiting a reassuring dialect, manner, and dress, he will not be mistakenly attacked when he walks toward a camp (Fiske 2010; McElreath et al. 2003). Over time our ancestors would become experts at minimizing the possibility of recognition errors with dialect-specific vocalizations and an expanding repertoire of other simple learned behaviors such as gestures, hairstyles, and markings on our bare skins—humans evolved, essentially, to be walking billboards for displaying our identities. Once sufficiently reliable and redundant signals emerged, suited to local conditions (e.g., visual signals in open habitats), membership would become unambiguous, eliminating the cognitively expensive need to constantly recognize who was who. The resultant depersonalized attraction would free every individual to focus more attention on their most important relationships (Chance and Larsen 1976).

The first societies using labels for identity would still have been small enough that complete unfamiliarity between any of the members was unlikely. It will be difficult to pin down exactly when such proto-anonymous societies arose because the customs I mentioned would vanish without a trace (as many have ever since). But their existence can be deduced by the opportunities afforded for societal growth and logistical independence. In individual-recognition societies, the movement of fission-fusion parties over too wide an area may cause a society to fall apart because long-separated members would generally know each other much less well. But contrary to the prediction of Dunbar (1993:692), as long as societal labels are reliable (Part 8), there should be little or no such effect for human societies—or the societies of our label-using ancestors. Groups both larger and more dispersed than those of *Pan* could appear, making possible the emergence of the hunter-gatherer mode of subsistence.

There is suggestive evidence that societies with this latent potential for anonymity, which would have required societal labels, existed long before cultural artifacts became common in the archaeological record. Based on cranial capacities, for example, Aiello and Dunbar (1993) estimate that the coalition sizes of *Homo erectus* and early *Homo sapiens* were larger than those of chimpanzees, suggesting their overall community populations already well exceeded the 200 limit for individual recognition societies among vertebrates. Grove (2010) uses archaeological evidence to project that societies could have reached several hundred individuals by the time the genus *Homo* emerged—populations as large as recent hunter-gatherer societies.

My conclusion, in brief, is that, at least as far back as their divergence from *Pan*, our ancestors never lived in strict family groups or any other kind of compact society offering regular face-to-face interactions between all members. Nor did they ever form open social networks. They were fission-fusion species that evolved, by simple steps, from societies bonded by the recognition of individuals to societies differentiated by labels. The boundedness of society membership wouldn't have changed during this transition. But times of scarcity and sparse populations might have helped precipitate the evolution of sharing between societies far beyond the generous levels typical of the closely related bonobo, with its equally closed social groups.

Distinct social traits of all kinds would eventually emerge within each bounded society as an outcome of the unique cumulative culture that arose in our ancestors (Foley and Lahr 2011), attributable to a ratcheting effect by which members create, modify, and diversify their behaviors (Tennie et al. 2009). The range of societal labels that resulted from this process would be especially stunning. "Given two tribes in a similar environment at a similar level of technological and social evolution [as most adjacent multiband societies would be], most cultural differences may be assumed to be of the badging variety" (Irwin 1987:138).

Part 6. The Life Cycle of Societies

The Study of Society Formation

The manner in which societies are founded and change with time—their birth, growth and development, reproduction, and death—are subjects of premier importance in understanding social species. Surprisingly little concerted study on the ontogeny of hunter-gatherer societies, and the role of labels in this process, has been done. To succeed in foraging and to avoid predation, among other reasons, members of multiband societies, like those of other human societies, tend to operate in groups (show *obligatory interdependence*: Caporael and Brewer 1995). For this reason new human societies would be unlikely to emerge by means of lone or paired "floater" individuals (the technique of some other animals, including the claustral foundation of most termite and ant colonies: Wilson 1975). The multiplication of prestate societies would more likely be the result of the parent society either dividing more or less in half or splintering off a few individuals, for example a mutinous or ostracized family or band (Birdsell 1957). The latter strategy, known as budding (Moffett 2012), would be perilous in habitats filled with larger, potentially dangerous human groups. Except for migrations to unoccupied terrain, especially over long distances, the former technique, division, has probably been the norm (Cohen 1978).

Thus far primatology has provided scant guidance for understanding how this division process evolved in humans. As an expert on ants, for which there are traditions for studying the natural history of colony founding and the implications of founding strategies, I was surprised to learn how little thought exists on this subject regarding chimpanzees and bonobos. The most serious gap in our knowledge of these species is in my estimation the life cycle of their societies, presumably because the seminal event, the formation of a new society, is rare. This is confirmed by spider monkeys, which have similar fission-fusion communities. After years of cumulative observations, no division of a spider monkey society has been recorded (Colleen Schaffner, personal communication, 2012). Because no review exists of the scant data, I address the community division among chimpanzees and bonobos in a necessarily speculative manner below, before considering the evolution of the division process in symbolically defined (anonymous) human societies.

A Brief Description of a Chimpanzee and a Bonobo Division

Only one division has been observed in a community of bonobos (Furuichi 1987; Kano 1992) and just one in a community of chimpanzees (Goodall 1986). These breakups have been referred to as fission, as they have in other primates (e.g., Okamoto 2004). Because this word connotes the functionally different, workaday *fission* events within a fission-fusion society in which groups routinely separate and come together, a different term is in order. I suggest *division* (or *irreversible fission*: Sueur et al. 2011). The distinction could have wide applicability because of the continuum among primates from cohesive to flexible social organizations (Aureli et al. 2008; Ren et al. 2011).

With the documented example of a bonobo division, two subgroups that would eventually separate had formed before the research began. During the nine years of study prior to the division, only two adolescent females transferred between the subgroups (Kano 1992), although occasionally a male joined the other subgroup temporarily (Takeshi Furuichi, personal communication, 2012). This infrequency of interchange within one community is extraordinary for a species known for its fluid fission-fusion dynamics. That is why I describe the sets of members maintaining these separations as subgroups, to distinguish them from the more typical transient parties. The subgroups met and intermixed regularly and without evident hostility, until about the time they split permanently, when their increasingly rare encounters would cause a "large dispute" (Kano 1992:79). After dividing, the two communities stayed apart for a year. Later, when they eventually interacted again, their relationship was amicable, as is normal for communities of this species.

With the chimpanzees, two subgroups were also evident long before the community divided, in this case, 13 years earlier, when Goodall (1986) began research at Gombe. Meetings between subgroups involving each group's dominant male "were launched by noisy, furious charges, followed by separated clusters of males grooming each other on opposite sides of the provisioning area" (Wrangham and Peterson 1996:12). Except for the emergence of the spatially discrete clusters, this description could apply to most fights between two chimpanzees over dominance status. Later, the larger group began to conduct lethal raids that would destroy the smaller one, but this began only after the division into two societies was complete (Williams et al. 2008; Wrangham and Peterson 1996).

Subgroup Formation and the Division of Chimpanzee and Bonobo Societies

In both the chimpanzee and bonobo examples, cleavage of the society took years. With other primates, divisions often transpire slowly, over the course of several months to a year or more (Sueur et al. 2011). This observation points to the possible universality among primate societies of an event preceding division, which I call *subgroup coalescence*: the genesis of subgroups that are almost as cleanly bounded as the society they still occupy. What causes subgroups to differ from fission-fusion parties in having long-term memberships is a mystery, as is the mechanism triggering the final division, when they become independent societies. Judging from both *Pan* divisions, subgroups often go their own way, using increasingly different parts of the community's territory, or an expanded version of that territory. At least for a time, they can meet amicably, with rare transfers.

Because the bonobo and chimpanzee subgroups had coalesced before both studies began, we do not know what the social relationships had been originally, or what competition existed, when they were presumably part of a single, integrated community. How might the subgroups have formed? Perhaps if a society grows too large for the available resources or takes over too wide an area, the coherence and coordination of its membership declines and stress from intragroup competition increases (e.g., Malik et al. 1985). I interpret subgroup coalescence to be a response to this condition, in which individuals focus their social networks away from the society as a whole to one subgroup within it. These redistributions of networks would occur when the animals gravitate toward whatever groups around them happen to contain the greatest number of coalition partners, kin, and mates; the fewest unfamiliar or hostile (i.e., socially dominating) individuals; and possibly the easiest access to the most food. The increasing reliance that individuals place on choosing groups to minimize social stress, compared with the more fluid (albeit undoubtedly still selective) movements among fission-fusion parties, would lead eventually to the coalescence of subgroups of a size and membership better suited to the social skills and needs of each animal. Rather than moving freely within the society as a whole, the individuals would begin to restrict their fission-fusion activities to within the favored subgroup. Because of their members' crosscutting ties, the subgroups would mingle on occasion, but with time and gradual differentiation of the subgroups, these connections would weaken and disappear.

The previous paragraph mentioned several possible stressors that could affect the division process, which I review briefly. Multiple social and resource factors might play a role, as is true for some other primates (Prud'Homme 1991; van Horn et al. 2007). For chimpanzees, competition can arise over fertile females (Muller and Wrangham 2001) and the availability and distribution of food (Lehmann et al. 2007; van Schaik 1983; Wrangham 1980). Limitations of individual-recognition societies could be a factor if a community grows too large for the animals to keep track of its scattered population through the mentally challenging process of recognizing every member. Kinship relationships could bear on societal divisions, too, though they might be less significant in species of *Pan* than in some other primates (see references in Okamoto and Matsumura 2001; Van Horn et al. 2007) since transfers of subadult females between communities break up matriarchal lines (de Waal 2012). Dominance issues could also arise. The subgroups may have crystallized at Gombe when a dominate male refused to acknowledge the ascendency of another (Richard Wrangham, personal communication, 2012). Alternatively, subordinate members could find opportunities to sever associations with dominant animals that have limited their options for obtaining mates or food or have otherwise caused them stress (Dittus 1988; Furuya 1969; Yamagiwa 1985). This option is supported by a large chimpanzee society in which the subdominants have formed a distinct subgroup (Mitani and Amsler 2003), although to date they have stayed in good terms with the dominant animals (John Mitani, personal communication, 2012).

The erosion of alliances, and the lack of time to build new ones, must likewise be a problem when a community is large and dispersed (Dunbar 1992; Sueur et al. 2011). Still, the eldest Gombe chimpanzees continued to interact on friendly terms across subgroups during the rare moments they spent time together, up to the point when the community divided. This suggests chimpanzee bonds do not require frequent reinforcement. Because of the fission-fusion dynamics of this species, their networks, though smaller and including fewer categories of kin and affinal relationships than networks of humans (and indeed, fewer social intricacies in general), will show a similar "release from proximity" (Gamble 1998; Rodseth et al. 1991), a trait that should therefore be considered diagnostic of the entire human-chimpanzee clade. (This is not to deny that individuals and bands in hunter-gatherer societies now, and probably in the Pleistocene, could often disperse more widely than parties do in societies of chimpanzees, as these and other articles describe—aided in the human case by the existence of society-wide symbols of identity.)

Chimpanzee and bonobo communities seldom reach far beyond 120 individuals. We can assume division is unlikely until a group approaches the upper end of that range. One could imagine a society dividing cyclically like a microbe. More plausibly, divisions occur only when it is sufficiently large and conditions are suitable. A society that is too small to divide could, in this view, exist as one entity indefinitely, as long as its growth is held in check by the quality of its territory or competition from neighbors. Hypothetically, at least, any improvement in that society's resource base, perhaps as a result of the retreat of neighboring groups, would allow it to expand its territory until it could claim more space and resources than any one community can control. At that point the concomitant increasing population, with its diluted kin and coalition networks and bloated dominance hierarchies, could make it both possible and beneficial for the individuals to break up into subgroups as their community overharvests the new habitat.

Whether both daughter societies ultimately survive would depend on the space and resources available to them (Christian 1970; Wilson 1975).

Underlying Drivers of Society Division for Hunter-Gatherers

One difference between chimpanzee and bonobo divisions and those of hunter-gatherers is that in deciding “Which set of individuals do I trust to stay with?” and “Are members of the other group now my enemies?” the former species must act on what little information they glean from the behavior of community members near them at any time. Not all the chimpanzees will witness crucial events, such as destructive confrontations between members of different emerging factions, and they learn few details of what transpired from others. Possibly for early hominins, and certainly for their *Pan* relations, few members will have experienced the division of a society before, comprehend that a division is happening, or anticipate the ideal outcome for themselves. Even so, language permits humans to communicate about what has taken place and the choices they can make. I will argue, however, that conceivably well before language evolved, identity labels would have facilitated both the forces that bind hominin societies together and those that tear them apart.

Could the dynamics of hunter-gatherer societies be driven by any of the stressors we saw in *Pan*? Within a hunter-gatherer band, the primary sources of stress would be disputes between individuals or families over personal problems (e.g., Abruzzi 1980; Carneiro 1987 [for villages]; Woodburn 1982), such as with free riders (Boyd et al. 2003; Dunbar 2007; Marlowe 2010). Whether brought on by such competitive issues as mate choice, food shortages, alliance failures, friction between families, or general social overstimulation (Fletcher 1995), disputes would bubble up as a band got larger (Johnson 1982; Lee 1979). Tensions could be relieved by fissioning the band or by movements from one band to the next within the society (Marlowe 2005). Local egalitarian interactions could be maintained, and no change in social identity need ensue.

What of the stressors that could cause the kind of a rift *between* bands, which could lead to the division of a society? Firstly, because humans use labels of societal identity, the need to recall every member is no longer an issue for us, nor probably for many or all of our hominin ancestors. Although humans lack the dominance hierarchies of chimpanzees, individuals who find each other intolerable might be a problem. Still, this issue could be avoided by moves between bands, as described above. Another difficulty might be the breakdown of decision-making when societies grow large without an effective leadership structure (Johnson 1982). For hunter-gatherers, however, it is unclear what decisions are made at the societal level, because bands operate largely on their own. Perhaps more significantly, the members of a large society will find it harder to stay connected with coalition partners (Aiello and Dunbar 1993; Dunbar 1993) should they become scattered among bands, although under such circumstances individuals are free to move or new relationships can form. Kinship could also be significant. Although their individual bands are not organized around extended families (Hill et al. 2011), hunter-gatherer societies are almost entirely endogamous, and a society with up to a few hundred members could still be composed largely of first- and second-order kin. Animosities could arise if individuals in a larger society are no longer recognized as being within each other’s extended chains of kinship (Read 2011). The tendency for immediate families to remain together during a division would result in a higher overall relatedness in the daughter societies than would have existed before the division, as is often the case for primates (Chagnon 1975; Dittus 1988; Rogers 1990; Widdig et al. 2006).

I propose that in shifting from the individual-recognition societies of other vertebrates, the employment of societal labels overrode the sources of competitive stress that cause *Pan* societies to fragment—including the dilution of kin and coalitional bonds just mentioned—to a sufficient degree to permit hominin societies to outgrow those of their ancestors. Recent hunter-gatherer societies are an order of magnitude larger than those of chimpanzees and bonobos. Sociality beyond the scale of *Pan* would have been an extraordinary Pleistocene innovation, a novelty among mammals. Societal labels, and the more fully anonymous groups they in time engendered, would have given early humans, and probably more distant hominin ancestors (Part 5), a direct competitive edge in confrontations with smaller groups of their own or rival species.

The Division Process in Hunter-Gatherers

In the course of a societal division, rifts between bands, and particularly among multiple bands, would tend to arise as a result of issues of identity, through modifications in labels that have drifted over time due to cultural innovations or pure chance. The drifts reflect that "identity is not a static attribute of an individual or a group, but a dynamic, flexible, and contingent property always in a state of change" (Wells 1998:241). In a preliterate society, change was minimized by rendering such key elements of identity as spiritual beliefs "maximally memorable and maximally transmissible" through repetition, ritualization, and counterintuitiveness so they "comprise almost unbreakable 'codes' for the uninitiated" (Alcorta and Sosis 2005:328) and are unlikely to be confused with the beliefs of other groups (Bigelow 1969). Still, the necessity that cultures have immutable attributes has been overstated (Sperber and Hirschfeld 2004), and especially so for arbitrary societal labels. The labels of hunter-gatherers would inevitably change, reflecting deficiencies in memory and communication, which involves reconstructing ideas rather than copying them (Schacter 1995).

Incremental changes ordinarily occur without destabilizing a society's identity or boundaries (Barth 1969). The differences might become irresolvable when labels are adopted from outside the group by only some bands, which can happen because bands in many ways (but not always, e.g., see Richerson and Boyd 2013) act separately (Birdsell 1973), or when members do not know the norms practiced across the full range of their society (Part 4) because their weak ties no longer extend that far (cf. Read 2011). Either could occur when a society becomes too populous and spread out, dispersion being a widespread trait of multiband societies throughout much of human history (Atkinson et al. 2008a; Binford 2001). Under such conditions the bands in a society are likely to coalesce into subgroups to which members would become increasingly attached (see Hornsey and Hogg 2000). With bands being semiautonomous and leaderless (Boehm 2012b), these coalescences would occur around commonalities expressed by labels. Changed criteria for normative conformity would cause continued identification with the broader society to become a source of emotional distress (Sani 2005). The society would eventually sunder along these fault lines (Hart and van Vugt 2006) to create independent cultures (Boyd and Richerson 2005). Coalitions and kinship would be motivators insofar as labels might often be a proxy for these attributes. Alliances and beliefs in a shared history and relatedness would be difficult to maintain after divergences in identity cause subgroups to establish. Ecological stressors such as competition over food or water sources could accelerate a division and play into the decision-making process accompanying it. The emergence of hierarchies among complex hunter-gatherers and horticulturalists would shift the catalyst of divisions to disputes between authority figures (e.g., Oliver 1955:443; Turner 1957:169), though symbols might be used by them as a tool (Part 8).

When a society does not have the space, Johnson (1982:408) suggests that “groups do not fission because the fission products have no place to go.” Is it possible for a society kept small by geography or the adjacent territories of other groups to survive indefinitely without dividing, as I proposed was conceivable for chimpanzees? Thus constrained, such a society might maintain a coherent, if changing, constellation of labels, though barraged (and perhaps overwhelmed) by outside influences (Birdsell 1958). If antagonisms force a division when there is not enough space, or enough members, to support two societies, this could guarantee the demise of the weaker daughter society, as was the case for the chimpanzees at Gombe when the smaller society had no place to retreat.

Many labels could precipitate the coalescence of subgroups and division of multiband societies. Language is the best studied, and perhaps leading, cause in recent history. “Larger [Aboriginal] tribes do show dialect differentiation. The largest ones clearly are in the process of fragmenting. . . . [A]s you approach 1000 persons per tribe, distance becomes an isolating factor . . . [and] they simply cannot maintain dialect homogeneity over too large a group” reports Birdsell (1968:246), who recorded Aboriginal societies with multiple distinct dialects (Birdsell 1973). Dixon (1976) describes Queensland Aboriginal societies as showing differences in dialect from band to band despite each society’s relatively small territory. Certain bands were central members of some of these societies, being the ones to retain the name of the original multiband group when (Dixon hypothesizes) the society has become sufficiently large and differentiated to divide. In one such society, a subgroup had created a name for its dialect. His observations corroborate the hypothesis that subgroups coalesce within a hunter-gatherer society, and develop a degree of independence, well in advance of the division of that society, much as we saw with chimpanzee and bonobos.

Why (Approximately) Five Hundred?

The narrow range in society populations of “simple” (egalitarian) hunter-gatherers, typically from a few hundred to at most about two thousand, suggests they tend to divide at populations in the high hundreds—Birdsell (1968) gives the number as a thousand. Indeed, multiband societies so often have populations in the mid-hundreds that 500 has been widely described as a “magic number” of hunter-gatherer anthropology (Lee and Devore 1968; cf. Binford 2001; Kelly 1995). A 500-member population is calculated as the minimum necessary to sustain interbreeding within a society (Wobst 1974), but there is no obvious reason that the population could not grow much larger. Certainly this number is not a species-specific optimal trait: Other forms of human society with less-restricted populations tend to outcompete hunter-gatherers.

As we have seen, primate societies can be assumed to destabilize beyond their normal size as a result of intragroup stressors, enough to cause their division (Dunbar 1993). Perhaps several hundred individuals represents a stable size for human fission-fusion societies. Yet it is unlikely that, across all the habitats hunter-gatherers have occupied globally, the members of their societies invariably become stressed for ecological reasons upon exceeding this particular population—certain societal labels may in fact assist bands in remaining united when they strain their resource base (Hayden 1987). Could the labels diverge so predictably among fission-fusion bands that hunter-gatherer societies never have the opportunity to achieve a larger size? If so, is this characteristic of these labels accidental or is it an adaptation that keeps multiband societies within a narrow size range optimal for foraging cultures organized into bands, perhaps under the conditions when the dynamics of the hominin division process emerged during the Pleistocene, or earlier?

Whatever the explanation, Pagel (2009:405), echoing Boyd and Richerson (1987) and Marks and Staski (1988), notes that "human societies come to behave in ways that are not so different from that of biological species." In much the same way that remote populations become distinctive as they begin a trajectory that ultimately leads to speciation, a multiband society may splinter when cultural variants grow pronounced at the far reaches of its home range in a cultural process akin to genetic drift. There might also be active selection for distinguishing traits due to competition along contact zones with neighbors (McElreath et al. 2003) because, as Conkey (1982:116) notes, for human societies, "there is always some boundary regulation going on." In fact, one imagines that clashes with different neighboring societies from one place to the next along a territorial border could accelerate the emergence of cultural variants between a society's bands. Note though that even while changes intensify across different bands within a multiband society, that society should remain distinct from its neighbors or even diverge from them to produce sharp differences (*positive* or *psycholinguistic distinctiveness*: Giles et al. 1977) by a kind of cultural character displacement (Brown and Wilson 1956).[4] This brings to mind the preliminary finding, discussed earlier, that adjacent chimpanzee communities develop the most dissimilar pant hoots (Crockford et al. 2004).

The analogy with speciation can only be taken so far. Even the most hostile human societies interbreed. Nor is there evidence that societies specialize in ecological niches the way species do, other than to reflect opportunities offered by local habitats, which can occur within a society also (Barth 1969). The conformist transmission of relatively shiftable norms may serve to keep people from imitating behavior unadaptive in their current environment (Boyd and Richerson 1987; Henrich and Boyd 1998), which could play some role in the division process. But more substantive niche differences among societies would arise later, when hunter-gatherers lived among pastoralists and horticulturalists. Even then, they often occupied separate spaces.

The speed of evolution of new languages (as few as 500 years: Pagel and Mace 2004), and presumably other labels, assures that cultural speciation, as recognized by identity shifts from band to band, would be taking place in a high proportion of hunter-gatherer societies, with divisions every few centuries (e.g., Newell et al.

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[4] Similar polarizing processes occur inside subgroups within modern societies (Hogg 2006; Labov 1972), where differences may be presumed by members to exist, even when they do not (Hogg and Abrams 1998).

1990:19). This dynamic makes societies, like species, difficult to define at times (Abruzzi 1982), a semantic issue commonplace for any term outside those for abstractions (Moffett 2000:570). The pervasiveness and pace of such change and the potential for lateral transfer of traits between societies make historical relationships hard to work out (Boyd et al. 1997). The crux of the matter is that, even allowing for some permeability of genes and culture, the expected result is the kind of mutability and multiplication of societies required by models of genetic and cultural evolution (e.g., Bowles 2006; Gintis 2000; Premo and Hublin 2009).

Large Egalitarian Hunter-Gatherer Societies Will Have Grown from Within

How did "simple" hunter-gatherer societies sometimes reach sizes of well over a thousand? It is often assumed or implied that large social networks were established through a merger of independent groups: e.g., "culturally transmitted institutions web together bands to create tribes" (Richerson et al. 2003:382); "groups of related clans, speaking similar languages, coalesced socially and politically into larger named units, often referred to as 'tribes'" (Lourandos 1997:38); "a key to human social evolution may lie in how local groups were first integrated, paving the way for progressively larger and more powerful political units" (Rodseth et al. 1991:233) (see also Chapais 2008). It is true that societies can be assimilated after a population collapse or hostile takeover, or by forming alliances in the face of adversity; such factors explain the emergence of relatively heterogeneous chiefdoms and multiethnic states (though the bulk of the work was done by way of domination and warfare: Bowles 2012). Hostile takeovers are, however, unlikely in multiband societies, since subjugated groups escape easily from bands. And despite intergroup cooperation under the conditions discussed previously (cf. Allport 1954), alliances seldom result in complete fusion of independent societies (Marilynn Brewer, Thomas Pettigrew, personal communications, 2012). To the contrary, Brewer (1999:436; see also Brewer 2000) argues "the anticipation of positive interdependence with an outgroup, brought on by perceptions of common goals or common threat, actually promotes intergroup conflict and hostility."

Partnerships might nevertheless solidify under extended conditions of stress involving non-defensible resources (which may have been the situation in Australia's western deserts, where some argue it would be suicidal not to share food and water: Tonkinson 2011), or during protracted conflicts with a mutual enemy. Perhaps, over the course of generations, a merger can occur in such situations. For it to succeed, each former society might need to offer the greater group something different in terms of resources or cultural skills (Abruzzi 1982), thereby creating separate niches (and retaining their identities in part). This kind of specialization probably requires social segmentation and stratification at odds with the continuance of egalitarian hunter-gatherer lifestyles; indeed, segmentation and stratification have been important to the coexistence of multiple ethnicities in modern state societies (Brewer 1999; Hewstone et al. 2002; Hogg 2006).[5] Such distinctions do not exist and indeed are impossible for

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[5] As with the division of one society into two, the merger of two societies should not be confounded with the fluid and reversible dynamics of fission-fusion groups, which is why I chose to describe them as mergers rather than fusions.

primates with well-bounded societies, for which the only form of society "mergers" known are isolated refuges joining another group (Hauser et al. 1986).

Still, the odds are against the merger of multiband societies, beyond the adoption of refugees or marriage partners who embrace the local culture and are unlikely to alter it (Barth 1969). A large, unified multiband society will therefore most likely be one that has grown from within—a capacity for population expansion made possible by shared symbols of societal identity.

Changes in the Perception of Former Society Members

How does the perception of former group members change as they split off to form another society? Let's first consider the chimpanzee. This ape is expert at facial recognition (Parr and de Waal 1999). In the community division described earlier, the animals would have recognized most if not all the members of the other subgroup throughout the division process and afterward when one community slaughtered the other. As Wrangham and Peterson (1996:18) tell us, "The most difficult aspect to accept was not the physical unpleasantness but the fact that the attackers knew their victims so well. They had been close companions before the community split." Did every animal, then, navigate the change in relationship with every other, one at a time? A more plausible alternative is indicated by the likelihood that animals routinely organize information into categories (Part 3). Chacma baboons, for instance, distinguish groups within their societies (Bergman et al. 2003). Just as activities of the motor cortex indicate people "literally think of others in the group as they think about themselves" (Ellemers 2012:849), apes could have a separate mental category for their society and shift the classification of former members, friends included, who join a splinter society. In short, "chimpanzees, like humans, divide the world into 'us' versus 'them'" (Russell 1993:111). Such a capacity could be an essential precursor to the employment of identity signals.

Is aggression a necessary part of this shift in identity? The chimpanzee killings began only after division of their society was complete. The paucity of fights documented during the division for both the chimpanzee and the bonobo is a surprise, since any stressors that might have led to the separation of two societies might be anticipated to motivate extreme conflicts at that time. What then set off the final divisions? Perhaps the researchers missed events so jolting that every animal avoided the other subgroup thereafter. Such traumas could serve to coordinate a final mass transference of identity to the subgroup, causing a society to be born. In a macaque troop division, for example, the pattern of aggression shifted from between individuals of different subgroups early on to mass actions by the subgroups just before the division (Prud'Homme 1991).

Whether the division process tends to be amicable or hostile among hunter-gatherers is unresolved. With the evolution of language, society divisions could in theory be managed through negotiations, but history suggests a complete lack of enmity would be rare. It is clear that humans react strongly to the emergence of behaviors sufficiently deviant to threaten the stability of their identification with a society. In what is called the "black sheep effect," for example, people can be much more hostile to deviant ingroup members than to deviant outgroup members (Marques et al. 1988), a behavior which, applied to subgroups perceived as deviant, would likely result in mutual collective intolerance (sensu Willhoite 1977).

Such intolerance has its effects. The evidence points to the greater part of the transformation of daughter societies occurring soon after they divide. Once the societies separate, language (and no doubt many other labels) are modified at a much more rapid rate than before, and diverge slowly again thereafter (Atkinson et al. 2008b; Dixon 1997). Presumably this initial restructuring reflects the potential for conflict with the former allies, as the perception of a threat generally increases a sense of shared fate and the overt employment of labels of identity (Billig 1995; Butz 2009). As described earlier for neighboring societies generally, the nascent societies struggle to distinguish themselves by inventing new, positively valued attributes or by modifying old ones (Brown 1986). The cessation of communication between the former compatriots would mean their common origins and shared affinities are no longer appreciated, if not collectively forgotten (Connerton 2010; van der Dennen 1987). Labels could then diverge unimpeded, with conflict between the groups being further exacerbated by the curtailed permeability between them (Horowitz 1985). Re-merger might still be possible, at least early on, if the offshoots are small (Birdsell 1973); otherwise the schism between groups would tend to be irrevocable even if core cultural elements remain unchanged. This outcome may be exacerbated by conflicts of interest between the estranged societies over territory and resources. Indeed, rather than our initial conquest of Europe and Asia having required early humans to live in unbounded or fuzzily defined social networks (sensu Gamble 1998), this expansion would have been driven largely by the pressing need for each new society to find its own territory and resources, as has been the case for most invasive social species.

Part 7. Aggression and Societal Labels in Hunter-Gatherers

Group-level conflicts are often best understood in reference to issues of identity. It should be no surprise that hunter-gatherers show little enmity or group violence when assessed at the level of interacting bands, except perhaps during times of society division brought on by changes in societal labels. After all, most neighboring bands will belong to the same society (Bowles 2009). The parties of a chimpanzee or bonobo community will be similarly nonaggressive, with squabbles ordinarily occurring between individuals or coalitions (e.g., over dominance status in chimpanzees) rather than between parties per se.

Holloway (1968:41) recognized that people “fan up and maintain hostilities in thought and deed toward symbol clusters and their human associations.” The perception of threats to symbols is a common issue in aggression toward other societies (Kinder and Sears 1981): “War is conditioned by human symbol systems,” writes Huxley (1959:76), and hunter-gatherers exhibit costlier rites, including indelible societal markers such as scarification, when they are engaging in intergroup hostilities (Sosis et al. 2007).

Membership matters. Moral rules seldom apply to outsiders (Boehm 2012a; LeVine and Campbell 1972; van der Dennen 1999). This aspect of xenophobia is a powerful force for spawning intergroup hostility: Consider the arms-race model of Alexander (1979), the imbalance-of-power ideas of Wrangham and Glowacki (2012), and the male warrior hypothesis of McDonald et al. (2012). It need not be true, however, that “the exigencies of war with outsiders are what make peace inside, lest internal discord should weaken the we-group for war" (Sumner 1906:12). Nor must societies be adversarial, despite their prejudices. Ingroup favoritism and outgroup derogation are psychologically independent (Brewer 1999, 2007; Cashdan 2001; Hewstone et al. 2002), as confirmed by studies of oxytocin, which promotes defensive, but not offensive, responses to outgroups (de Dreu 2011; de Dreu et al. 2010, 2011). Xenophobic reactions of fear and disgust can serve to maintain boundaries between groups, rather than to provide reasons to fight (Brewer 1999; Douglas 1966; Kelly 2011). Small societies can potentially avoid problems simply by moving away from outsiders (Moffett 2011). Even amicable mixing of societies can take place so long as social identifications remain intact, as happens on occasion in bonobos (Furuichi 2011) and in another form in glenda baboons: embedded in shifting aggregations called herds are "units," led by single males, that are homologous to the societies of other baboons (Bergman 2010). The mutual need for goods and marriage partners, and for joint defense of societies against outsiders (among nonhuman primates, a behavior known only for hamadryas baboons: Abegglen 1984), can be a basis for peaceful relations among hunter-gatherer societies. If anything, there would have been an increase in cooperation among societies in the course of hominin evolution—especially if the chimpanzee rather than the relatively peaceful bonobo is used as the model of our early ancestors.

For all that, social psychologists acknowledge that groups are more competitive than individuals "under the same functional conditions" (Turner 1981). Reactions to outsiders depend on whether (and how) they are perceived as a threat, however (Cottrell and Neuberg 2005). A group is likely to strike out at outsiders only when this feeling is accompanied by the perception that one's own group is stronger (Mackie et al. 2000). Multiband societies, having no despots or enforced armies, may consider attack an option only if the risks are low: Population dispersion into parties and bands is why chimpanzee and hunter-gatherer societies can be easy targets of the stealthy raids and "wars of attrition" described by Wrangham and Peterson (1996). Raids face few dangers relative to the kind of conflict referred to as warfare in common parlance, which I characterize as "a concentrated engagement of group against group in which both sides risk wholesale destruction" (Moffett 2011): the use of "warfare" in anthropology to describe violence more broadly has been misleading. Also, the ends must justify the means. Intergroup resource competition is a sufficient, though not necessary, condition to foster ethnocentrism (Brown 1986; Esses et al. 1998; Homer-Dixon 1994; LeVine and Campbell 1972) The general decline of aggression in industrialized societies (Pinker 2011) has a good chance of continuing for as long as those societies are able to exploit resources at accelerating rates.

Part 8. Stability and Number of Societal Labels, and the Size a Society Can Achieve

Agricultural societies could have responded to the increased carrying capacity made possible by domesticated foods (the *Neolithic demographic transition*: Bocquet-Appel 2011) by living densely with other societies while maintaining pretty much the same small populations, as is the trend when other primates live at higher densities (Cheney 1987). How was it, then, that agriculture (and to a lesser extent, the foraging methods of complex hunter-gatherers) gave sedentary human societies the chance to break this population barrier? A clue is found in Birdsell's (1968:248) comment that "the [multiband] tribe depends on speech as well as on feet, so one must limit its projection to the range within which one thinks symbolic communication existed" (the "density of communication": Birdsell 1958). Because most of the identity labels communicated offer no adaptive value other than to differentiate one society from another, and hence, when compared with utilitarian technologies, should be prone to alteration and loss, I suggest a general rule: *Anonymous societies like those of humans can grow larger than individual recognition societies like those of apes, but this growth can continue only so long as their labels remain sufficiently stable across their population.*

Another way of saying this is that the more widely, effectively, and accurately societal labels are transmitted, the more likely it is that the labels can bond an increasingly large and growing society (though of course population expansion could be impeded by other factors). Thus, the wide spacing of bands and the inefficiency of travel between them would cause identity labels to drift quickly in a multiband society compared with what one would expect for a compact agricultural village. The high rates of interaction within an egalitarian village society, or interacting settlements separated by farmland, would stabilize labels and more swiftly transmit any novel ones to its members, allowing each society to remain unified at greater populations (though just as the bands within a hunter-gatherer society are limited in size, the population of each "residential unit" or village may be limited by the human capacity to cognitively handle local egalitarian networks, in this case to several hundred: Kosse 1990, 1994). The stability of labels need not depend on intelligence, only integrity of transmission and recognition. In Argentine ants, for example, single colonies (supercolonies) that consistently employ the same hydrocarbon labels have expanded into populations that in one case exceed a trillion (the ants are likely to have relatively simple genetic links between these labels and the behavioral responses workers show in distinguishing their societies: Moffett 2012).

When an isolated group is so small that accurate transmission of cultural features to the next generation is not assured, the alteration and eventual loss of those features accelerates. This is known as the Tasmanian effect, for the Aborigines who forgot such skills as fire making after being isolated on Tasmania by rising waters 8,000 years ago (Henrich 2004b; Powell et al. 2009; Shennan 2001). As far as societal labels are concerned, losses could also reflect a lack of need for distinguishing characteristics when there are few to no outsiders to interact with. Because group identities are the product of such interactions (Royce 1982), I propose another rule: *The more a society interacts with competitive groups, the greater the number, complexity, distinctiveness, and conspicuousness of its labels.*

Competitive interactions become frequent when societies pack into a small spaces, such that none of their population is far from boundary regions, where differences tend to be exacerbated in response to contacts with neighbors (McElreath et al. 2003). Under extreme conditions of cultural character displacement (Part 6), foreigners grow even more foreign (or nonhuman, sensu Gil-White 2001). Thus, the high recognition factor of adornment and ritual in New Guinea, home to more than 1,000 tribes, compared with the relative simplicity and similarity of the societal labels of their sparsely distributed Aboriginal relations in Australia. Thurston (1989) calls sharp language differences between neighboring societies "esoterogeny" on the basis of the value of the differences as labels in New Guinea—see Kulick (1992) for fascinating examples. The flowering of artifacts in the Upper Paleolithic might therefore be explained by increases in the number of interacting societies—which exchanged or stole divers technologies while using fewer, more subtle labels than denser populations that arose later—and not, as Richerson and Boyd (2013) propose, because people across Europe acted as one society, a view that is not tenable given the invariably modest-sized societies of egalitarian hunter-gatherers (Part 6).

The first rule, regarding labels and population sizes, suggests that, given available space and resources, a society should expand each time its members exercise new means of stabilizing its labels. Noteworthy steps in the process follow, in their approximate order. The early steps offer intriguing opportunities for further study because, when there is no efficient system of leadership, control, and communication, individuals tend to assume that the most remote, least known members of their group are similar to themselves (MacDonald 2001), allowing divergences in norms and conventions to take place that in time may rupture their society.

1. The earliest labels to identify society members were probably variants of socially learned behaviors, exemplified by the chimpanzee pant hoot (Crockford et al. 2004), in societies forged by members knowing one another individually. Such "password" societal labels would reduce the likelihood of mistaking foe for friend and friend or foe without leaving a trace in the fossil record.
2. When the labels became precise and unambiguous in branding individuals with their membership (and had diversified enough to provide a safe margin of signal redundancy and, perhaps, convey other kinds of information), societies were able to exceed the 200-member limit of our more distant ancestors. Once individuals no longer had to know every group member, and systems were established to assure sufficient cooperation and trust, the cognitive costs of being in a large group plummeted and anonymity within societies became a possibility. Countering that, the value of building ever-larger coalitions within these expanding societies drove the increase in cranial capacity first described by Aiello and Dunbar (1993).
3. Population densities made possible by renewable wild foods (for complex hunter-gatherers) or agriculture further increased the frequency, accuracy, and speed of label transmission, boosting the growth of the first village-based societies. Because of frictions between people living together without a central authority (Johnson 1982; Oliver 1955; Rappaport 1984), these egalitarian villages would occasionally fission (Bandy 2004). Though some villages act as separate societies (Bandy and Fox 2010; Chagnon 2013), village fissioning can be equivalent to band fissioning—i.e., a result of friction between individuals or families (Part 6) in which the products, though sedentary and larger than bands, remain part of an interconnected ethnolinguistic society (e.g., Flannery 2009; Titiev 1944; Wilshusen and Potter 2010).
4. Hierarchical organizations emerged in some sedentary societies, which further stabilized their populations by giving people systems to reduce social stress as well as specialized social roles that sometimes carried labels of their own (Carneiro 1967; Forge 1972; Naroll 1956; Wells 1998). Additional growth in population was made possible by leaders who kept societies together in part

   through charisma or power (e.g., Oliver 1955; Turner 1957) and controlled aspects of language and other societal labels through laws and the consolidation of norm-reaffirming beliefs (Atran and Henrich 2010). Under these conditions "social identity . . . looks outward and does not allow people to dwell on what they lose within the group" (Caporael and Baron 1997:335).
5. Widening infrastructure permitted additional population expansion, with a speedy interchange along stable pathways and roads keeping labels constant across ever-greater distances.
6. The invention of writing and eventually the printing press secured the possibility of stabilizing societal labels even further—in time, transcontinentally.

Throughout these last steps, small societies were conquered by and subsumed within more powerful ones. The survival of the vanquished became dependent on sufficient integration with the larger group. This made the horizontal transfer of labels of increasing importance, as the defeated groups' traditional labels were replaced with ones absorbed from the conquerors, resulting in a homogenization of cultures overall.

Meanwhile, and in part because of the integration of dominated groups, humans became more pluralistic by identifying with groups within their societies, including disparate ethnicities in multicultural states. Alternative sets of labels could be employed by the same person as the situation merited (Turner et al. 1987). Though some groups within (and sometimes shared between) state societies can be enormous, there is a tendency for many, at least at a local level, to correspond in size to ancestral coalitions, work parties, hunter-gatherer bands, or multiband societies, suggesting these group sizes are part of the "core configuration" of human mental architecture (Caporael 1997). At the society level, the increasing latitude in employing labels of identity would eventually make labels unreliable for recognizing foreigners, which now had to be policed by governments, through immigration and passport agencies, for instance.

My focus on hunter-gatherers in this article leaves many questions unanswered. Once state societies are built, what shatters them from within? Is it when artificial identity constructs are exposed (the demarcation of the former USSR, say), or when morality clashes with economy (as in the United States Civil War)? And when they split apart, is it along predictable lines, insofar as they echo back to our ancestral days?

I propose, in summary, that ancestral humans not only developed the broad coalitions that have been the focus of much research, but, at little cost in gray matter, the larger anonymous societies within which these alliances are built. The first labels likely emerged through minor modifications of behaviors much like those found in today's chimpanzees. This could easily have occurred soon after our ancestor's divergence from the chimpanzee line, allowing hominin societies to grow larger than those of other apes. Well before the advent of agriculture, these fission-fusion societies, composed of multiple bands sharing an identity much like the organization of recent hunter-gatherer societies, could achieve sizes large enough that not all the members inevitably knew one another. The existence of societies—groups with a definite membership—should therefore be brought front and center in discussions of human evolution. To pursue these ideas, the findings from the social and natural sciences need to be integrated further, with more attention being given to the relationships between labels, social identity, cultural learning, psychology, and brain function.

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