



McDONALD INSTITUTE CONVERSATIONS

Towards a Broader View of Hunter-Gatherer Sharing

Edited by Noa Lavi & David E. Friesem



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Noa Lavi & David E. Friesem,
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Chapter 4

Sharing and inclusion: generosity, trust and response to vulnerability in the distant past

Penny Spikins

As the contributions to this volume demonstrate *sharing* is fundamental to the way of life of mobile hunter-gatherers. Sharing structures all aspects of life from the basics of how subsistence is organized to how people perceive of themselves and others. Sharing of food has received the most attention, however mobile hunter-gatherers also share all aspects of their existence from hunting risks, childcare, knowledge and power to their concept of who they are and how they relate to those around them. Moreover, there is little doubt that sharing has been key to our evolutionary success. Confronting predators or large prey is extremely risky, however by sharing risk early humans were able to compete with predators for carcasses, and later hunt collaboratively (Whiten & Erdal 2012). Being able to acquire meat through active scavenging and hunting seems in turn to have been key to brain expansion, and indeed expansion of our complex social brain (Gamble, Gowlett & Dunbar 2011). Likewise provisioning and shared care allowed vulnerable young to be raised to adulthood irrespective of individual variance in food acquisition or parental availability and is key to long periods of infant dependency and learning (Hrdy 2011; Hill & Hurtado 2009). Sharing of care for those who are injured contributes to significantly reducing mortality (Sugiyama 2004; Spikins et al. 2018b) and knowledge sharing to health (Salali et al. 2016). Without a capacity to give to those in need (and receive help when needed) in many different ways early humans would not been able to move into the new ecological niches which made them successful (Gurven et al. 2012; Whiten & Erdal 2012).

The material evidence of sharing extends far back into early prehistory, yet a differing evidence base has tended to draw the disciplines of archaeology and anthropology to approach sharing amongst hunter-gatherers from somewhat different perspectives. For *archaeologists* studying hunter-gatherers from material remains, sharing has typically been seen

in terms of measurable material transfers such as of food (see Barkai, this volume) or raw materials. The nature of the archaeological record equally lends itself to issues over large scales of time and space such as seen through long term movements of raw materials or gifts (see Kelly et al., this volume). *Anthropologists* however benefit from enviable evidence for sharing as part of intimate social relationships (see Bird-David and Hewlett et al., this volume). For hunter-gatherers in a modern context sharing is not only an economic reality but also part of more intangible relationships between people, as seen in the sharing of identities, knowledge (see Tostevin, this volume), space (see Hewlett et al., this volume) or intangible resources such as songs (see Lewis, this volume). Anthropological contexts illustrate that sharing for modern hunter-gatherers is about how social relationships between people operate through a certain *generosity* of giving without securing a reward.

Each perspective gives vital insights into sharing as the practice which lies at the heart of hunting and gathering societies, nonetheless different approaches can create a certain tension in our understanding of what sharing *is*. One would even be forgiven for concluding that sharing within the mobile hunter-gatherers of the distant past and those in the present operated under entirely different principles. Hunter-gatherers of the distant past who distribute resources or effort are typically described as ‘collaborating’ (with the implication that some long term economic benefit to the exchange is visible) whilst modern hunter-gatherers ‘share’, implying a sense of giving. The significance of sharing as part of intimate social and emotional relationships in the past is often overlooked. As a result, we are often left without satisfactory explanations for important social behaviours in the distant past. Rational collaboration fails to explain the extensive lengths which people from very early in our evolutionary past went to in order

to look after the ill and injured, often when it will have been obvious that such individuals would not survive (Spikins et al. 2018a). Likewise, the inclusion of sometimes vulnerable individuals, such as those with autism, appears difficult to explain (Spikins, Wright & Hodgson 2016).

I argue here that to fully understand sharing in the far distant past we need to find how to relate the intimate social and emotional context of sharing in modern hunter-gatherers to large scale patterns of resource transfers seen in the archaeological record. By doing so we can begin to understand how complex emotional relationships of generosity, trust and response to vulnerability create the social conditions of *sharing* as distinctive from *calculated collaboration*. A perspective on sharing as a socio-emotional system which results in particular types of resource transfers allows us to explain apparently enigmatic social behaviour in the distant past such as widespread care for the vulnerable. Moreover, we can begin to appreciate how the socio-emotional basis of sharing has had a long-term influence not only on our emotional capacities but even our human populations structure.

Sharing in an evolutionary perspective

Taken from an evolutionary perspective the sharing that we observe in modern mobile hunter-gatherers is markedly different from anything we might term ‘sharing’ in other social mammals (see Widlok, this volume). Sharing is a complex and conscious process which extends beyond kin for example (the Aka for example share 50–80 per cent of what they hunt and gather with all of the group every day (Hewlett & Hewlett 2013, 75). Moreover the ‘pay-offs’ of sharing are not only not direct, but even *not apparent* on an individual level at all (Nowak & Sigmund 2005; Silk & House 2011). There doesn’t seem to be rational reasons to share so extensively. Rather than transfers of effort or resources being part of supporting one’s kin or of a two way relationship between peers with some sense of ‘tit-for-tat’ as we see in primates, sharing in modern hunter-gatherers is based on needs, rather than pay-offs (Smith et al. 2018; Jaeggi, Burkart & Van Schaik 2010; Tomasello & Vaish 2013).

Sharing relies on several evolved cognitive-emotional capacities which mark humans as distinct (Fig. 4.1). Perhaps the most obvious is that of our level of emotional self-control – to share demands resisting the temptation to take for oneself or keep to oneself and instead give to others, whether this be resources, time, or what we might term the emotional work of empathizing, consoling or supporting others (Heatherton 2011). Food sharing for example

demands substantial self-control in overcoming one’s own hunger or anticipation of food in order to give this to others (Crittenden 2016). Sharing also demands an other-focus or empathy, a capacity to be emotionally motivated by the needs of others, and cognitively able to think through how to help. Though human empathy has its neurological foundations in mother-infant bonds, unlike any animals we empathize and can be motivated to share with friends, strangers, inanimate objects and even concepts (Decety et al. 2012). Furthermore sharing can only flourish where there is a capacity to judge the reputation of others (who may or not be trustworthy), an awareness of one’s own reputation and willingness to detect and punish cheats (Manapat, Nowak & Rand 2013). Shared power depends on monitoring of other’s behaviour and motivations and a shared response to cheats or those who seek to dominate for example (Boehm et al. 1993; Boehm 2012).

The high levels of ‘give and take’ typical of practices of sharing in hunter-gatherer rely not on definable material returns but the benefits of a social reputation for generosity – giving generously to those in need improves one’s reputation, and so future support when in need (Gurven et al. 2000). Amongst the Ache for example those hunters who are most generous in sharing their kill are most willingly looked after when ill or elderly (Gurven et al. 2000). Sickness and injury prevent Ache hunters from hunting around a third of the time which illustrates how important such support is in hard times. Likewise amongst the Martu

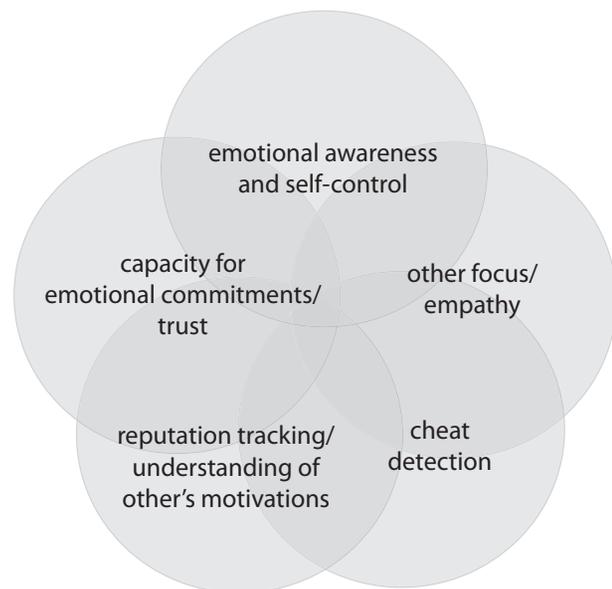


Figure 4.1. Significant cognitive-emotional capacities involved in sharing in mobile hunter-gatherer contexts.

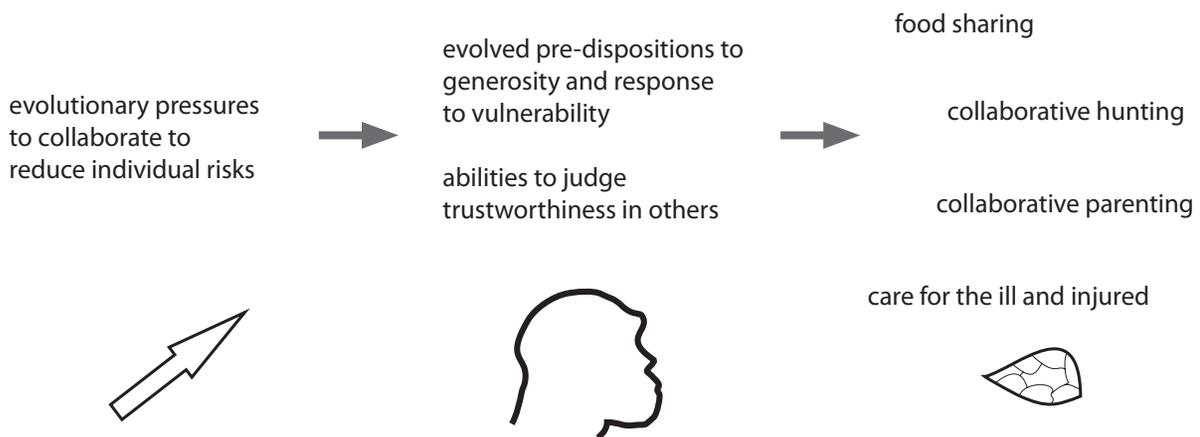


Figure 4.2. Evolutionary pressures, motivations to share and sharing behaviours in early humans.

those who are most generous are preferred hunting partners (Bliege Bird & Power 2015). Sharing might not yield clear measurable material benefits but as an indirect result of generosity social reputation plays a key role in survival.

This significance of sharing as contributing to social reputation over and above the practicalities of the resources being shared makes sense of sometimes paradoxical displays of generosity and sharing in modern hunter-gatherers. Gomes (2011) for example notes that amongst the Menraq and Semai of Malaysia, people frequently share identical goods with each other, such as rice, as the act of sharing is more important than the material exchange. Similar practices are also noted by Endicott (1988) amongst the Batek. Equally, the largest and most elaborate gift is not necessarily the 'best'. Wiessner notes that an overly generous gift would end a *hxaro* relationship (Wiessner 2002) presumably by placing the recipient in an uncomfortable position of obligation. Similar apparently paradoxical examples of sharing in modern hunting and gathering contexts exist in the archaeological record. Exotic Slovakian radiolarite was transported into Polish early upper Palaeolithic assemblages, presumably through gift exchange, even though this material is clearly inferior to the local chocolate-coloured flint (Gamble 1999, 333) for example. Expressing generosity (rather than functional value) was clearly the key to the gift exchange process. That 'cheating' on the sharing ethic, such as eating food out of sight of others (Berbesque et al. 2016), generally occurs in minor ways and when very unlikely to be 'found out' further underlines the significance of reputation to the dynamics of sharing. Hunter-gatherers both past and present shared a common drive to be *generous* and also to be seen as *generous* even where

this might seem counter-intuitive in terms of visible returns on such generosity.

Archaeological evidence for lifestyles comparable to those we see in modern hunter-gatherers only appears relatively late in the archaeological record. Gift-giving, widespread symbolism and extensive alliances between groups as well as many complex cultural expressions seem to emerge only after around 100,000 years ago for example. However *sharing through generosity*, at least in its simplest form, appears remarkably early in human evolution. Archaeological evidence for sharing of hunted food (see Barkai, this volume), sharing of hunting risks (Domínguez-Rodrigo et al. 2014), and shared parenting (Hrdy 2008), emerge around the time of emergence of the genus *Homo* and by at least 1.5 million years ago. This is a period where pressures to collaborate to survive will have been intense, driven by the adoption of a new predatory niche and a need to buffer individual risks. Proximate psychological mechanisms driving *motivations to share with those we trust without counting the cost* seem become strongly selected for (Gurven & Jaeggi 2015; Jaeggi, Burkart & Van Schaik 2010), including neuroendocrine changes which form the foundation from human altruism. Changes in hormones such as oxytocin, linked to male parental investment, shared infant care, a social focus to cognition and responses to vulnerability in any group members are likely to have been key to such changes for example (Trumble, Jaeggi & Gurven 2015) (Fig. 4.2).

The influence of sharing can be seen in modern psychology. We are careful to notice who responds to those who are vulnerable, and so who to trust for example (Manapat, Nowak & Rand 2013). Even though neo-liberalism may encourage a certain calculation of returns from one's efforts, we do not

trust close friends or partners who have *calculated* the benefits of our relationship to them (Silk 2003; Nesse 2009; Gottman 2011; Hoffman, Yoeli & Nowak 2015). Uncalculating generosity is taken as a signal of trustworthiness, visibly handcuffing us to another's well-being and so ensuring the high levels of give and take which a mere agreement could not (Nesse 2001; Silk 2003; Kurzban, Burton-Chellew & West 2015; Jordan et al. 2016). Starting from a young age, children prefer to share with those who have been visibly generous to them (Leimgruber et al. 2012). Over time children become generous givers, in turn building their own reputation for generosity (Manapat, Nowak & Rand 2013; Cowell et al. 2017). Moreover giving away resources or effort increases our sense of happiness (Park et al. 2017).

A fundamental *motivation to share* appearing from the early Pleistocene onwards may explain apparently inexplicable social behaviours seen in the archaeological evidence. Firstly responses to physical vulnerability explain care for the ill and injured even when it would have been clear that recovery was unlikely, and secondly responses to social vulnerability explain motivations to inclusion which provide the foundations for increasingly cognitively diverse human populations.

Sharing and care for injury and illness in the distant past

Evidence for care of illness or disability in early pre-history is usually discussed in isolation from evidence for other types of sharing, such as food sharing or childcare. This may be because the latter have been seen as directly explicable in economic or evolutionary terms, whereas care for illness and disability has been seen as something of an enigma, and subject to intense scepticism (Doat 2016; Thorpe 2016; Spikins 2017). Care for those who will not recover to repay such care, or *sharing of health*, seems at odds with a neo-liberal narrative of success in ways that food sharing or childcare are not (Spikins 2017). Even though food sharing is *effectively* sharing of health, food sharing can appear to fit more easily with a 'calculated collaboration' model of relationships than healthcare for which, in the case of severe injury or impairment, care can seem to be effort expanded with a lack of evident 'benefit'.

Any explanation for care in terms of a sharing and supportive mentality has been resisted. This is despite healthcare provisioning being key to reducing mortality in modern hunting and gathering societies (Sugiyama 2001), and support of those with disabilities in modern hunter-gatherers widely recorded (Toda 2013). As a result apparently paradoxical evidence

for care for injuries, illnesses and the elderly is often sidelined in reports and receives scant attention as a topic compared with evidence for violence (Tilley 2015b; Thorpe 2016). There is much discussion about the implications for violence from the head injury of the St Cesaire Neanderthal in the published paper for example (only one of two cases of clear interpersonal violence in Neanderthals) (Zollikofer et al. 2002), however the same paper barely mentions recovery from this trauma, which will have taken many months of care. Furthermore extreme scepticism has been levelled at arguments for willing care and support from others. It has been argued that injured or impaired early hominins may have survived through foraging alone despite impairments (Degusta 2002) and in the absence of incontrovertible proof of intention of extended support from others (impossible from skeletal remains) we should accept a 'null hypothesis' that no care or support to the injured was available in past societies (Dettwyler 1991). Neanderthals as a particular case have even been described as 'callous' (Wynn & Coolidge 2011) despite demonstrably extensive care for the ill and injured (Spikins et al. 2018a, 2018b). Bizarrely survival despite severe injury and impairment in *dogs* in later archaeological contexts (such as a severely arthritic dog found at Roman Carthage, (MacKinnon & Belanger 2006)) are ascribed unproblematically to care and support, even though dogs might seem to be more able to forage for themselves, whilst similar recovery in palaeolithic humans is interpreted differently.

Patterns of survival and recovery for many recorded cases from extensive injury in the distant past nonetheless cannot be explained by self care and indicate willing care from others (Doat 2016). The earliest evidence comes from a *Homo ergaster* female (KNM_ER 1808) from East Africa who for example survived for several weeks through severe pain and loss of consciousness around 1.6 million years ago (Walker et al. 1982) which would have been impossible alone. By around 450,000 years ago we see several examples of care in a collection of pre-Neanderthal hominins, found at Sima de los Huesos in northern Spain where of around 28 individuals at least 3 would have needed help to survive, including a child with craniosyntosis (Gracia et al. 2009), a man who was deaf, and an elderly man who could only have walked slowly with a stick due to pelvic deformation (Bonmatí et al. 2010; Bonmatí et al. 2011). Care from others also seems indisputable in many cases in Neanderthals including that for the elderly man at Shanidar, who was blind in one eye, and had a withered arm and withered leg and who may have been dependant on others for at least fifteen years (Trinkaus & Zimmer-

man 1982; Trinkaus 2014). Extended care is also likely for many other individuals such as a Neanderthal from La Chapelle aux Saints and that from La Ferrassie (Tilley 2015a). Shang and Trinkaus even observe that all of the documented lesions in pre Late Pleistocene hominins show some degree of recovery (2008, p.435) and Harvati (2010) that Neanderthals would not have survived the periods of convalescence required without support from others. Yet even where care and support is indisputable there remains nonetheless a stubborn reluctance to attribute *evidence for care* to any *willing generosity* and an assumption that some calculated 'pay-off' (though difficult to envisage) must exist. Tilley (2015a, p.226) notes for example the comment by David & Underdown (2006, 148–9) that 'the extensive intragroup care needed to sustain such infirm members is surprising unless they provided some valuable service'.

What seems to be missing from the debate is an understanding of the wider context of sharing.

An understanding that motivations to support those with physical vulnerabilities are part of a wider socio-emotional dynamic of *sharing through generosity*, with long term returns lying in social reputation, provides an explanation for the apparent enigma of widespread care. We might *imagine* sharing through calculated collaboration in the distant past, and so question where time, resources or effort is shared where there are no evident 'pay-offs' (and consider for example that it would 'make sense' to care for those with minor injuries but to abandon the severely injured or impaired). However calculated collaboration doesn't provide the give and take necessary to support survival of small highly interdependent groups. In a system of sharing through generosity individuals who calculated pay-offs would lose social reputation as trustworthy allies to depend on and so lose future support when they needed it. Extensive calculated collaboration would thus undermine the socio-emotional dynamic upon which widespread sharing depends. Rather the earliest evidence for survival of severe injury/impairment coincides with evidence for other elements of sharing, such as collaborative hunting (Domínguez-Rodrigo et al. 2014), food sharing (Jaeggi & Gurven 2013; Whiten & Erdal 2012), collaborative childcare (Hrdy 2011), and in association with evidence for displays of reputation, and self-control, in stone tool forms (Spikins 2012). These different elements of sharing, alongside care for the physically vulnerable, seem intimately connected through a common dynamic of *sharing through generosity*.

Care of the physically vulnerable in the distant past can be explained through an understanding of the socio-emotional basis of sharing, and the benefits

of social reputation for those who reach out to help. Rather than simply an outlying oddity within apparently rationally explicable resource transfers care for the physically vulnerable has a wide influence on human population structure, maintaining individuals who might otherwise be lost to communities and providing the basis for uniquely human social learning.

Sharing, tolerance and diversity

There are also further implications of a socio-emotional model of generosity, trust and response to vulnerability as being integral to hunter-gatherer sharing. *Sharing through generosity* also explains care for the socially vulnerable and in particular how various skills and talents which also bring disadvantages and social vulnerabilities can be maintained and supported in human populations.

Cognitive differences and mental health conditions are difficult to identify from skeletal material, however what evidence exists suggests care for these conditions was forthcoming as for physical disabilities and impairments (Spikins 2017). Craniosynostosis in a child from Sima de los Huesos at around 450,000bp was clearly supported by the group (Gracia et al. 2009), as was notable brain damage of the early modern human at Quafzeh around 90-100,000 years ago (Coqueugniot et al. 2014). Particular roles may even have emerged. For example probable epilepsy seems likely to have influenced a Mesolithic woman's position from Bad Durrenberg as a potential shaman for example (Porr & Alt 2006). Similar resistance to accepting a concept of willing care is seen in such cases however. Whilst there is no palaeopathological evidence or supporting ethnographic evidence to support the argument it has been assumed that individuals with noticeable impairments in Upper Palaeolithic and Mesolithic contexts who have received elaborate burial have been given such treatment as a result of being deliberately sacrificed, rather than playing a significant social role (Formicola 2007). Once again an assumption is made that any vulnerability might be subject to a calculated assessment of benefit in the distant and potentially considered 'not worth supporting' rather than receiving support and inclusion.

Attitudes to the potential inclusion of individuals with autism in past hunter-gatherers provide an interesting example. Cross-culturally in modern contexts a significant percentage of individuals (around 2–6 per cent) within populations fit a diagnosis of autism spectrum disorder. This condition is highly heritable, has a long genetic history, and has been shown to have been subject to positive selection or active inclusion in the distant past (Polimanti & Gelernter 2017). The

presence and selection of autism in the distant past has seemed surprisingly given its characterization as a social disorder. The inclusion of individuals with autism, typically associated with deficits in social understanding, into past hunter-gatherer societies has seemed out of keeping with a classic evolutionary model (see Spikins & Wright 2016; Spikins et al. 2016). Some even argue, despite the genetic evidence to the contrary, that individuals with autism simply wouldn't have been supported in palaeolithic hunter-gatherers, with their integration going beyond what such societies would be willing or able to support (Pickard et al. 2011; Bednarik 2013; Bednarik 2016).

Autism *can* be severely disabling. Those with the most disabling autism, that associated with intellectual impairment, do frequently face severe challenges as do those who care for them. Nonetheless support and inclusion for those with equally disabling cognitive impairments have been recorded even in non-human primates. Extensive efforts to care for an infant with Down's syndrome have been recorded in our nearest living relatives chimpanzees for example (Matsumoto et al. 2016) and autistic behavioural traits are tolerated in chimpanzees (Faughn et al. 2015). Moreover it seems likely that small scale and hunter-gatherer communities are likely to have been a more supportive environment than modern societies for those with particularly disabling autism, though a lack of expectations of what 'normal' should be (Kapp 2011) as well as fewer sensory pressures and cultural expectations of behaviour (Spikins & Wright 2016). Severely disabled individuals may not have made a contribution in genetic terms, and autism with intellectual impairment is known to be typically associated with *de novo* or spontaneously occurring genes rather than selection (Robinson et al. 2014; Robinson et al. 2016). Nonetheless their presence and inclusion within hunter-gatherers of the distant past seems probable. It seems doubtful that any calculated estimate of who was 'worth' including would *commonly* take place in such contexts.

Integration of individuals with autism without intellectual impairment (formerly known as Asperger's syndrome and here termed AS) is not difficult to explain through relatively modest social support. A case for the emergence of specialized roles for such individuals can be made. In modern societies AS is not *necessarily* a disability for example (Baron-Cohen 2000) – many individuals with the condition are unaware of any 'disorder' and view their particular talents, such as in mathematics or computing, as useful (Baron-Cohen et al. 2001). Moreover rather than being anti-social, individuals with AS are typically as motivated to contribute to society, albeit in different ways, and are best seen as 'differently social' (Solomon 2010). Such individuals perceive the world differently, may take longer to develop an understanding of others, and may find complex social situations challenging however usually understand others well enough (through social rules) to 'get along' socially (Baron-Cohen et al. 2001). A perceptual focus on detail (known as local processing bias or 'weak central coherence') leads to a detail focus which can be beneficial in art (Spikins, Scott & Wright 2017a) and in technical realms. Likewise abilities at understanding the relationship between complex forms, as evidenced through enhanced abilities to interpretation of embedded figures (Fig. 4.3) are also significant in technology and construction (Happé et al. 2001; Briskman et al. 2001). Enhanced skills in several domains such as technology, engineering or mathematics, as well as a notable concern for fairness thus seem to present 'trade-off' personality characteristics. Special skills, such as in realistic artistic depiction, musical pitch, mathematics or calendrical understanding are common (Meilleur et al. 2015).

Given a motivation to contribute to a common good, and particularly enhanced skills in certain realms which can compensate for deficits in others, it isn't difficult to see that individuals with AS could have played important roles in society in the past, much as we know that they do in the present. Genes

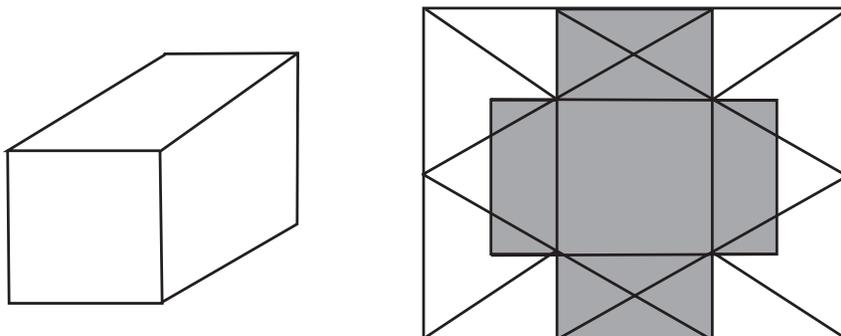


Figure 4.3. Example of an embedded figures test. Participants are asked to identify the figure on the left within the figure on the right. Individuals with AS perform better in such tests than do those who are neurotypical.

associated with AS are subject to normal inheritance and variation (Gaugler et al. 2014) and individuals with AS have families, with their spouses showing normal levels of marital satisfaction (Lau & Peterson 2011). AS is common in families of engineers (Baron-Cohen et al. 1998) as well as particularly being associated with STEM subjects (Wei et al. 2013) and law (Rodman 2003).

Examples of individuals with rather different skills, and tolerated social distinctiveness exist in anthropological contexts, for example Vitebsky documents a particular individual amongst Siberian reindeer herders. He remarks:

The extraordinary old grandfather had a detailed knowledge of the parentage, medical history and moods of each one of the 2,600 animals in the herd. He was more comfortable in the company of reindeer than of humans, and always pitched his tent some way from everyone else and cooked for himself. His son worked in the herd and had been joined for the summer by his own teenage sons, Zhenya and young Sergei. (Vitebsky 2005, p.133)

Identifying individuals with autism in the archaeological record is a notable challenge. Even in modern society there are no objects unique to individuals with autism, even though preferences for valued personal possessions differ (Spikins, Wright & Scott 2017b). Technological skills are however likely to have been particularly valued in certain contexts, of which attention has particularly been drawn attention to upper palaeolithic (ice age) Europe. At this time (approximately 30–10,000 years ago) severely cold, dry and variable environments imposed substantial threats to existence, making complex technology, such as spear throwers, essential to survival. Certainly the levels of detail expressed in stone tools in this region are far beyond the merely functional (Sinclair 2015), moreover detailed recording systems exist which will have demanded notable patience and systems understanding in their production (Spikins & Wright 2016). The most *interesting* potential material evidence for inclusion in upper palaeolithic Europe comes from the art of the region however, notable for its realism, extraordinary attention to detail and prevalence of overlapping forms. The level of exceptional realism in upper palaeolithic art has been compared to the art of individuals judged to have exceptional abilities associated with the weak central coherence common in autism (Drake & Winner 2017; Spikins, Wright & Scott 2017a). Moreover embedded figures (or overlap-

ping forms) are also a common element of the art, and easier to decipher for individuals with autism than for the neurotypical.

It isn't difficult to imagine how for such cultures, regardless of who made the art, an artform which exploits a particularly autistic type of vision of the world, and is more easily interpretable by those with more autistic perception (Figs. 4.4 and 4.5), may have played a role in the integration of *different* minds. Much as today such art draws our attention through its 'difference' from other more stylistic art forms in

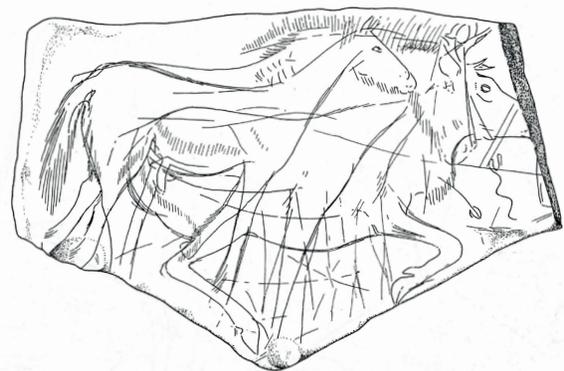


Figure 4.4. Example of portable art showing embedded figures (or overlapping forms). Plaquette 691 from Montastruc, dated c. 11,000 BP, shows 3 horses (photograph above and illustration of figures below), which share a tail, hindquarters and a penis and have separate heads, overlying a reindeer (images and photographs courtesy of the British Museum). The plaquette, only of many similar pieces of art, illustrates a talent at creating and interpreting embedded figures.



Figure 4.5. Examples of embedded forms (or overlapping figures) in parietal art. Detail taken from engravings at *Les Trois Frères*, illustration by Abbé Breuil.

other cultures, exposing the viewer to a particular way of seeing the world would likewise have exposed contemporary viewers to a particular vision and perception. Art may thus have been, at least in part, an arena for seeing world through different eyes and a means of fostering inclusion.

Contrasting emotional schemas – sharing through generosity and calculated collaboration

If sharing through generosity, trust and response to vulnerability was as much an essential part of sharing in the distant past as today, then how do we explain the lack of motivations to share in these terms in modern industrialized contexts?

In many ways the dividing lines between a generous hunter-gatherer sharing and an industrial individualism with calculated exchanges are not as sharp as it might appear. In many hunter-gatherers calculated returns rather than responses to vulnerability or need are the mode of collaboration between distant groups for example and often organized through clear social rules (Godino et al. 2013). Equally some individuals amongst hunter-gatherers take a more calculated rather than emotionally driven approach to sharing, as illustrated by orphans amongst the Inuit (Briggs 1970).

Moreover, it is easy to forget that many individuals in modern industrialized contexts share with a truly remarkable generosity, such as those who donate kidneys to strangers (Brethel-Haurwitz et al. 2017).

There are nonetheless marked cultural contrasts. Economic games illustrate that the propensity to share is much reduced in industrialized societies (Henrich et al. 2001, 2004). We are all capable of sharing through generosity, trust and response to vulnerability or through calculated collaboration, focusing on the potential benefits which giving up a resource might bring (Fig. 4.6). However clearly individual, social and cultural experiences play a key role in promoting (or constraining) our willingness to share.

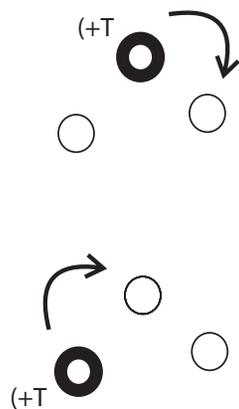
The most obvious influences on our individual emotional motivations to share come from our personal experiences with care-givers as we develop, and our level of attachment security. These personal relationships colour our internal working models, or emotional schemas, of social relationships. Experiencing childhood as a hunter-gatherer tends to be associated with the levels of intimacy which promote the type of security which fosters trust for example (Hewlett et al., this volume; Hewlett, Lamb & Leyendecker 2000; Boyette & Hewlett 2017). A sense of trust and security within close relationships is promoted by close secure

relationships in industrialized contexts and sharing generously within a close family context is often the norm. However there is a greater prevalence of those who lack a secure loving relationship to a care-giver as children in industrialized societies (Mikulincer & Shaver 2010) and levels of insecure attachment continue to increase (Konrath et al. 2014).

There are important cultural influences on sharing. Whilst very young children in different cultures worldwide show similar tendencies to generosity, it is in middle childhood that children pick up different cultural norms and internalize these into their own internal working models of expectations for relationships (House et al. 2012; House et al. 2013; Crittenden & Zes 2015). In mobile hunter-gatherers narratives of the importance of sharing are widespread (Hewlett & Hewlett 2013) whereas other cultures may emphasize independence (House et al. 2013).

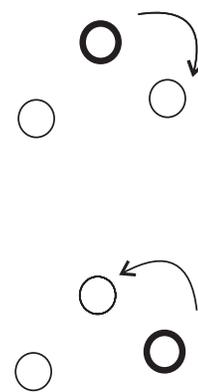
Short term and particular cultural contexts can also play a key role in influencing our emotional motivations to share, even as adults. In now famous studies, Marwell & Ames (1981), and Frank (1993) (and

more recently (Bauman & Rose 2011)) demonstrated the effects of a narrative of natural human self-interest within the discipline of economics on young adults (undergraduate university students). They showed that through studying economics, a discipline founded on a concept of individual self-interest, these students become more focused on their own immediate self-interest and less able to share and develop relationships based on trust and less willing to contribute to the public good. In effect such students are changing their internal working to prepare for better survival in the type of self-oriented social environment they perceived around them. Such students can't be simply described as less moral, since as well as being more self-interested such students have also been found to become more honest (Yezer et al. 1996). Honesty is essential to certain types of collaboration, however whilst making arrangements for mutual interest based on honesty may be 'collaboration', it is not 'willing sharing'. Economics students rather seem to be developing *a different type of morality*, one in which honesty and ownership are prized and generosity and



Sharing through generosity

- response to vulnerability and need
- development of reputation for generosity (+T)
- narratives of trust and inclusion
- confidence in availability of others/ being cared for
- high levels of give and take buffer individual risks



Calculated collaboration

- response to potential for future benefits which are evident
- development of reputation for honesty and fairness
- narratives of individual autonomy/ status acquisition
- anxiety or dissociation, lack of confidence in care from others
- low levels of give and take (efforts only made where returns are evident)

Figure 4.6. *Contrasting internal working models and social behaviour between sharing through generosity and calculated collaboration.*

sharing are not important (Zsolnai 2003), something potentially workable in a world where it is possible to be independent from any help from others.

Relating to others primarily through calculated collaboration might seem like a failure of some drive to share generously however it more rightly reflects an adaptive emotional schema which works according to context. We develop such differing internal working models according to our experience. Social mentalities based on secure supportive contexts, associated with sharing through generosity in social relationships, a sense of equal worth to others, and being attuned to other's needs, are most adaptive in affiliative contexts (Gilbert 2015; Liotti & Gilbert 2011). However, survival in *unsupportive* social contexts can be compromised by sharing generously. In such cases the best chance of survival lies in being self-oriented, conceiving others within a ranked hierarchy and operating under calculated collaboration (as in the case today in many inner city street gangs, Gilbert 2005). More individual focused and competitive models fail to support trusting relationships with high levels of give and take and carry serious emotional costs (Gilbert et al. 2009). Nonetheless they come into play in particular social and cultural contexts where they help us to survive.

Clearly our *capacity to share through generosity* may be hard-wired but its expression is not. Widespread sharing based on generosity, trust and response to vulnerability depends on social and cultural effort. This significance of the cultural context to which alternative emotional schemas prevail explains many features of hunter-gatherer society – the attention to the support of children, constraining self-interest, resisting attempts at dominance and promoting a culture and narrative of sharing for example. Given a need for high levels of collaboration in small scale hunter-gatherers the narratives of trust portrayed in firelight talk (Wiessner 2014) and their influence on internal working models of generosity are as essential to long term survival as any practical resource gathering might be.

Conclusions

Sharing in the distant past has tended to be discussed in terms of transfers of resources (such as food sharing or sharing of raw materials) and through the long term economic advantages which sharing brings, with little attention to the intimate social basis and motivations for sharing. Widespread sharing in modern hunter-gatherers is however based on intimate emotional relationships of generosity, trust and response to vulnerability which emerged early in our evolutionary history. These emotional relationships help to explain apparently enigmatic features of the archaeological

record such as extensive care for the ill and injured, and motivations towards inclusion.

Our distant past of sharing has had a widespread influence. In practical terms care for physically vulnerable individuals who might otherwise have been lost to communities changes the age structure of populations, keeping older individuals with valuable knowledge and skills within groups and fostering a uniquely human type of social learning. Motivations to care for socially vulnerable individuals likewise changed the structure of human populations, bringing new perspectives and talents which in many cases may have helped survival. Moreover, in emotional terms the importance of sharing within highly collaborative communities has given us alternative emotional schema through which we relate to those around us, making possible both sharing through generosity and calculated collaboration.

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