

Us and Them: Group Identity as a Driver for the Origin of Language

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Introduction

In this paper I want to propose that a human attribute which lies at the heart of cultural modelling, the ability to view groups as objects (and particularly to see the self as part of a group), is genetically determined. This seems to be a feature which we do not share with other animals, even genetically close species. I will use a Darwinian evolutionary model to examine the mechanisms that can lead to the high levels of co-operation and socialisation that permit human culture, and to consider why other species do not need the metaphor, THE GROUP IS AN ENTITY.

In particular, this paper looks at two traits that play a significant role in defining humans as human: our substantial capacity for altruistic punishment, and our capacity to reify the group as an entity above the individual. Both these traits are problematic in evolutionary terms, and for different reasons; but they both seem to have played an important part in the process by which we became human.

Altruistic punishment is unusual in nature, but not unknown; and, where used, it is almost always a response to inaccurate or deceptive signalling. In many cases, the honesty of a signal is maintained by its cost to the sender. This, known as costly signalling, relies on the threshold at which the receiver accepts the signal being so great that cheating is just too expensive for the sender. There is no need for altruistic punishment in this type of signalling.

Costly signalling is useful where the receiver must make judgements based solely on the signal value (e.g. mating signals, interspecies signals), but it is less useful for kin selected or reciprocally altruistic signals. In these cases, a “contract” outside of the signal means

the signal can be reduced in cost without affecting value. This is what we see in warning and social signals between group members, especially relatives. These cheap signals are open to cheating, however, so the receiver must evaluate the signal/signaller combination rather than just the signal itself.

Humans are exceptional in terms of signalling honesty. We use cheap signalling despite living in groups with apparently limited relatedness; and we have complex societies dedicated to enforce signal honesty. Not all our signals: we also value the shared fantasy of story-telling. Where, however, signal/referent veracity is expected by the receiver and not delivered by the sender, we have various systems of punishment available at the group level to use against the cheat. This means that individuals are expending their resources not just to punish those who have offended against them personally, but to punish those who have offended unrelated others. This altruistic punishment at the group level without a high level of relatedness is problematic: what evolutionary mechanism could permit it to work?

Metaphor in cognition

The central metaphor of this paper, THE GROUP IS AN ENTITY, concerns the role of the reified group in human society. It would therefore be convenient if we could establish metaphor itself as exclusively human; and, indeed, as a communicative device, metaphor does seem to be an exclusively human preoccupation. Yet as a cognitive device, it is certainly possible to posit a general, non-species-specific mechanism that allows inferences from one sensory circumstance to be influential on another. For instance, recognition of the commonly-occurring black-and-yellow striping as being a sign of danger will save a lot of painful experimentation; and the discovery that lakes may contain crocodiles can, by extension, create a useful aversion to open stretches of water. It is likely, therefore, that cognitive metaphors of this type existed long before humans first appeared on the planet.

These metaphors, however, rely on personal experience: once bitten, twice shy is an effective rule in these circumstances. The metaphors can also become innate knowledge in a straightforward way – they are simple and reliable enough to become encoded at the genetic level, because individuals for whom the metaphor is innate do better than those that need to learn it with each new generation. If, however, we try to imagine the communication of the metaphor between individuals then we immediately encounter the honesty problem: why should the sender give away this valuable information for free, and why should the receiver believe this free information? If I tell you that black-and-yellow stripes indicate danger then it has exactly the same probability of being true as if I tell you bananas are dangerous. Yet the first is useful free information and the second is a deliberate attempt to keep all the bananas for myself. Costly signalling accounting tells us that the value of a signal to the receiver is exactly equal to its cost to the sender; the transmission of metaphor, as with any second-hand knowledge, is an almost cost-free exercise for the sender, therefore it is a value-free signal for the receiver.

So the communicative transmission of metaphor is likely to have been a much later development than its cognitive instantiation. Between minds, metaphor is a source of obfuscation and confusion; but inside a single mind it has important and practical superordinating, subordinating and co-ordinating functions. As a superordinating mechanism it represents the cognitive shortcut that the instance, *x*, is part of a related group of instances, *y*, so the features of *x* must predict the features of *y* (this elephant has big ears, so all elephants have big ears); as a subordinating mechanism it represents both the shortcut that the features of *y* must predict the features of *x* (elephants are dangerous, so this elephant must be dangerous), and that the nature of *y* must predict the nature of *x* (elephants have trunks, this has a trunk, so this is an elephant); and as a co-ordinating mechanism it represents that *x* shares some features with an unrelated object *z*, so it is likely to share other features, too (wasps are black-and-yellow and sting, this is black-and-yellow so it stings).

All of these metaphor models are, of course, logically inconsistent and do not provide universal truth-values; but they do provide working shortcuts that are sufficiently correct to give a fitness advantage to the animal that uses them. Just as Newtonian mechanics is essentially wrong but still useful, so these cognitive metaphors are effective but not necessarily true.

Metaphor is essentially a deceptive mechanism, a shortcut that allows immediate action based upon incomplete information. Sometimes, lying to ourselves is a valuable strategy, allowing us to react even when we don't have sufficient evidence to do so. True, over-reaction does incur a cost to the individual, but the cost of under-reaction may be much higher: better to spook at branches that look like snakes than to ignore the snake that looks like a branch. The advantages of metaphor, therefore, are such that it is likely to have been embedded in cognition fairly early on in the evolution of brains and minds.

What is an ENTITY?

If we look at the metaphor central to this paper, THE GROUP IS AN ENTITY, we would now appear to have a strong candidate for early cognitive genesis. It represents a co-ordinating metaphor: the GROUP shares some features with the unrelated single being or object, the ENTITY, such that one can stand for the other in cognitive modelling. It also has superordinating features, in that the individuals who make up a group are each entities themselves; so the features of the individuals must predict the features of the group.

However, we have to analyse the metaphor in terms of its primitives, the GROUP and the ENTITY, and find out whether these concepts are simple or complex in evolutionary terms. The concept ENTITY is likely to be a common evolutionary product: cognitive segmentation of the universe is vital for many primitive activities, such as identifying sexual partners, food and predators, so it is likely to have been an early evolving cognitive function. Of course, it has the capacity to develop and become more sophisticated over time, so that it becomes possible to classify entities in various useful ways on a range of

interrelated scales; for instance, moving versus stationary, living versus nonliving; friend versus foe; in-group versus out-group.

These four classifications have been deliberately selected to illustrate increasing sophistication of entity identification. Moving versus stationary allows the differentiation of things of interest (moving) from less important aspects of the environment (stationary); important things (sexual partners, predators, and sometimes food) tend to be mobile. However, important moving things also tend to be moving in particular ways, and things that move in other ways are not necessarily of such importance. It therefore becomes useful to differentiate different ways of moving – the way important things move is more relevant than, say, the way a pebble slides down a slope. Living versus nonliving becomes a difference worth identifying.

These two levels, moving versus stationary and living versus nonliving, are basic, and most animals are able to make those distinctions. The next level, friend versus foe, is somewhat more sophisticated, and relies on being able to identify objects not just by rough class but as individuals. Any social animal needs to be able to classify other individuals in their social environment as friendly or antagonistic – there is a need for the animal to be able to identify living objects as individuals; at least, this is important for those living objects that have a long-term and material effect on the animal. If individuals are identifiable, however, then attribution of characteristics can be made at the individual level – and the individual can become manipulable at the individual level. This Machiavellian manipulation is a feature of sociality but not eusociality, where the identification of friend or foe is performed simply by using badges of membership (usually nest “scent”).

So friend or foe, when it includes identification of individuals, is likely to require a level of cognitive complexity not achievable by many animals. Nonetheless, most warm-blooded animals (mammals and birds) seem to be capable of identification at the individual level. This must certainly be the case for social mammals, where the imperatives of feeding and breeding require the maintenance of a complex set of relationships with other individuals. With the apes, using what Richard Byrne refers to as Machiavellian intelligence, there is a clear fitness advantage in not just identifying individuals and attributing characteristics to them, but in manipulating those individuals to the advantage of your own situation.

The last classification of entities, in-group versus out-group, or Us versus Them, is the most problematic; not least because, as humans, we see it occurring where it is unlikely to be actually happening. For instance, in eusocial insects we can see behaviours that seem to be describable as group recognition, consensual voting and even cultural conformity. It is, however, very unlikely that these behaviours are actually products of conscious cognition. Instead, they seem to be emergent properties from convergent individual genetic imperatives. Group recognition is the product of individual friend versus foe recognition, where all individuals use the same code; voting behaviours are the product of individual initiating and following behaviours, creating apparent consensus through individual responses to competing signal strengths; and, while culture itself must be

learned, conformity to local culture can be the product of genetic imperatives – if conformity is itself a reproductively fit strategy.

For true classification of in-group versus out-group there has to be recognition by the classifier of the group itself. On first consideration, this does not appear to be difficult to explain in fitness terms, but it turns out that a satisfactory explanation for the evolution of recognition of the group is not simple.

Where does the GROUP come from?

The recognition of the concept GROUP would seem to be uncomplicated: things occur in multiples, and can be handled either as individual items or as a single mass – just as a bunch of grapes is both a single bunch and a group of individual grapes. This concept of GROUP is, however, external to and does not involve the individual. If we consider GROUP in terms of in-group versus out-group then we have a very different and much more complex concept to explain.

First, the concept of in-group requires a knowledge of the self as an entity: there is an object, group, and another object, self, and the group contains the self. However, the self-object is, in a vitally intimate way, also me. It is me both as a cognitive model made by me of myself, and as the person who is generating the cognitive model. Basically, I am viewing myself in a way that allows me to be dispassionate about myself – to view myself as if I were an external third person. This should allow me to build an accurate picture of myself as others see me, but in practice our self-models are usually inaccurate: my model of myself is compromised by the me producing the model.

The question of how, in evolutionary terms, it can be adaptive to try to be objective about yourself is a conundrum: to be objective you must be dispassionate, and where is the fitness in being dispassionate about yourself when all others around you are passionately defending their own corner? An objective viewpoint of the self would seem to offer a ticket to genetic oblivion; and yet, somehow, this capacity has become a defining genetic feature of our species, to the point where failure to exhibit sufficient skill in it is seen as pathological – the autism spectrum and sociopathy being obvious examples.

What mechanisms allowed self-objectiveness, albeit not fully efficient self-objectiveness, to become part of our species-defining genetic make-up? As we will see below, David Erdal & Andrew Whiten's vigilant sharing and Christopher Boehm's reverse hierarchy models do provide useful starting points from which to consider that problem. It is also likely to have involved both mechanisms for altruistic punishment, and an increase in social role specialisms based on sex (e.g. hunting and cooking) and age (e.g. grandmothing). Here, however, we are concerned with the origins of self-objectiveness in terms of one particular outcome, the capacity to model the self as part of a group.

If the self is seen objectively as a third party, it is possible to treat it in the same way as any other third party: it can be seen as a part of a group. The objective grape is part of a

bunch, the objective me is part of a tribe. There is no fitness implication in this unless the tribe is seen not just as a product of the individuals that make it up, but also as a superordinate of those individuals. If the tribe is reified and anthropomorphised as being itself an individual, then the imperatives of the individual, me, are subordinate to the imperatives of the entity, the group. Or, to put it another way, my actions become subject to group sanctions, not just at the group level but in a self-censoring way, too. I begin to see myself as no more important than any other member of the tribe, and must be willing (and cognitively able) to subordinate my needs to those of others.

The subordination of self in the emergent metaphor, THE GROUP IS AN ENTITY, is a startlingly un-Darwinian thing to be willing and able to do. There must, therefore, be a countervailing fitness that makes self-effacement (or morality, if you prefer) a good strategy for the individual. Obviously, group living conveys all kinds of advantages and is widespread throughout nature; but the particular socialisation that makes self-sacrifice a viable strategy is rare. Eusociality works essentially by reducing the reproductive capacity of individuals, sometimes to zero, making them reliant upon the breeding success of close relatives to get their genes into the next generation. This is not the case in humans: we retain our own full reproductive capacities, yet somehow we have generated a pseudo-eusocial group structure that allows us to work together on complex projects, and this capacity appears to be largely the product of our genetic programming. Mostly, we are happier in groups than by ourselves, we are happier working with others than working alone, and we are happier conforming to group norms than rebelling. Clearly as evolutionary scientists we cannot, as Dame Edna Everage sings, put this down just to our niceness. Our nastiness must also play a productive role.

Altruistic punishment as an engine of socialisation

Altruistic punishment is another conundrum in evolution. What is the fitness advantage in punishing others? To mete out punishment we have to give up time and resources, and we also have to be willing to accept any costs caused by the punished individual fighting back. Obviously, punishment works best when a group of individuals gang up on the “sinner”, but this raises the mutant problem. All evolutionary change must start with a single mutant; but if a single mutant altruistic punisher arises in a population they will be paying all the punishment costs when others pay nothing, so they are compromising their own fitness and advantaging the fitness of others – how do their genes prosper in future generations in order to create team punishment?

Nonetheless, altruistic punishment has been observed in several species, and the more socialised the species, the higher the level of punishment. It may be that altruistic punishment is not initially an engine of socialisation but a product of it. If an individual needs group membership in order to thrive then the mere withdrawal of that membership may be sufficient to punish the individual. For instance, if grooming is necessary for good health, and individuals in a group only groom other individuals they like, then all that is needed is a mechanism whereby individuals view social sinners unfavourably. The sinners get less grooming, and getting their genes into the next

generation becomes that little bit harder. A simple mechanism of vigilant sharing, as proposed by Erdal & Whiten – each individual is aware of their share in terms of the shares of others – accompanied by low-cost social ostracism can be sufficient to create an environment where more deliberate altruistic punishment can appear.

This vigilant sharing social environment does not favour alpha individuals, whether male or female. Any individual who attempts to seize more than their share of the resources is likely to suffer a reduction of fitness caused by their ostracism, reducing their capacity to act in an alpha role. This model produces Boehm's reverse dominance, where alphas are naturally suppressed, and where being modest about personal physical advantages becomes a costly signal of fitness: I am so fit that I don't even need to advertise it, it's blindingly obvious.

Modesty is perhaps the most unusual form of altruistic punishment: the individual is punishing (or censoring) themselves in order to prove their fitness as a member of the social group. They are making a costly signal by showing themselves able not just to put the needs of the group above their own needs, but to do so in a way that values the group needs as greater than their own needs – they have so much spare capacity for the group because their own needs are a trivial draw on their resources.

The altruistic punishment inflicted on social cheats is also likely to be inflicted on signalling cheats: false signals will not just be ignored, they will be positively discouraged. The high level of socialisation allowed by reverse dominance means that signal honesty becomes particularly significant, and false signals will usually create significant losses for the group. In eusocial insect species such as the hymenoptera and isoptera, and in mole rats (*Heterocephalus glaber* and *Cryptomys damarensis*) and in meerkats (*Suricata suricatta*) there is one dominant fertile female per group, and high relatedness between group members. False signals are usually punished in these species, but relatedness is a powerful Darwinian incentive to keep the signals honest, anyway.

So we can see that the power of altruistic punishment can be harnessed to enhance socialisation only in very limited circumstances, and where a level of socialisation is already present. It cannot, by itself, generate socialisation in an unsocial species, and is not a fit evolutionary strategy in those circumstances. Once harnessed, however, altruistic punishment can move that socialisation to levels of co-operation that can create some very un-Darwinian effects in the individual, such as self-sacrifice.

THE GROUP IS AN ENTITY: building social structures

The metaphor, THE GROUP IS AN ENTITY, is both a product of social structure and a source of it. In order for the cognitive concept of GROUP to be given brain-room by an individual, it must be part of the individual's daily experience. Yet being part of a group need not be cognitively recognised by the individual in order for the group to exist. For instance, it is not necessary for eusocial insects to have any concept of nestmates or nest in order to work together in what appears to be a highly organised way. In fact, the

individual's mutuality algorithms can be remarkably simple and still generate complex group working: each algorithm only has to produce co-operation with one other nestmate at a time for an apparently highly organised society to exist. It can even produce the illusion of hierarchy and central organisation – partly because, as humans, we metaphorically extend our own pseudo-eusocial models to explain full eusociality.

So the group is a mechanism which emerges from individual co-operations, and does not need to be cognitively recognised by its participants; but what can bridge the gap between the unrecognised emergent group and the recognised group that we humans clearly have? The first step is probably the maintenance of individual accounts of co-operation, to identify those individuals who are regularly co-operating with me and those who are not. This becomes a necessary mechanism in any species with a level of cognitive control over whether they co-operate or not: cognitive control creates the possibility of freeloading, so co-operative accounting becomes necessary to identify freeloaders.

The next stage of co-operative accounting is to identify not just how individuals co-operate with me, but how they co-operate with each other. This opens up the possibility of alliances based on mutual interests – such as “the enemy of my enemy is my friend”. These alliances can be *ad hoc* and changing as the web of co-operation itself changes, but the individuals who have the necessary intelligence to negotiate this web will tend to do better than less Machiavellian individuals. There are indicators of group awareness in this kind of cognitive modelling, but it is merely a representation of the boundaries of the mutual interest group: it divides the world into those individuals who have a place inside my social model and those who don't. There is no representation of the group as an entity of itself.

When THE GROUP IS AN ENTITY does become a cognitive concept, however, it creates a new world of possibilities. The group no longer needs to reflect physical reality, it can become a concept purely of the imagination. Humans form tribes, nations, chess clubs, academic conferences, and so on. The identification of in-group and out-group may appear logical and reasonable in these cases, but they are often based upon an evolutionarily indefensible pretext. Why do individuals who are good at pushing bits of wood across a tessellated board according to arbitrary conventions need to group together? What fitness advantages do they get?

Seeing the group as an entity allows a society to consist of not just one group but many sub-groups; it allows individuals to be members of groups which cross what would have been in-group and out-group boundaries. I can be an atheist or theist or deist within the Labour or Liberal or Conservative parties: membership of one group does not automatically preclude membership of another. Treating the group as an entity can make conformism to the arbitrary rules of a single group a fit strategy, but it can also make membership of multiple groups a fit strategy. The arbitrary meta-rules of culture determine the nature of the groups available for individuals to join, and the arbitrary rules within the group determine which individuals will join them.

The appearance of THE GROUP IS AN ENTITY as a cognitive concept, therefore, creates the possibility of a very different kind of social structure. Individuals who can manipulate the concept will have an important advantage over those who cannot, being able to create alliances in new ways; and, when the concept becomes more general, being able to negotiate the new and more complex social web that is likely to appear.

THE GROUP IS AN ENTITY: an ancient metaphor?

As we have seen, the capacity to use metaphor in general cognition is unlikely to be a purely human trait; it gives such useful cognitive short-cuts that it provides tangible advantages even for simple life-forms. Some metaphors must, therefore, have their origins in pre-human cognition. For instance, the classic metaphor MORE IS UP is a simple product of gravity: as you make a pile it rises from ground level. It therefore becomes a fit cognitive short-cut to identify tall things as *more* and short things as *less*.

The metaphor, THE GROUP IS AN ENTITY, does not have this relationship to the real world. Indeed, it seems highly counter-intuitive in a Darwinian Universe. This alone argues for it being a very recent occurrence, and probably limited to the human lineage. Subordination of the self to the aims of the group is explicable in eusocial animals, but not in species with individual breeding rights, no matter how socialised they may be. There are small hints that other primates may have some type of group recognition, and the friend versus foe metaphor (which they very likely do have) is a good basis on which to build recognition of the group. Jane Goodall has even reported that chimpanzees (*Pan troglodytes*) go to war – although it is a very different concept of war from the organised conflicts that even hunter-gatherers are able to mount against each other; and it is very unlikely that any chimp would give cognitive house-allowance to the idea, *dulce et decorum est pro patria mori*.

The origins of the metaphor, THE GROUP IS AN ENTITY, must lie in the complexities of socialisation – it is an essentially social expression. Machiavellian socialisation (I get more advantages in the group than out) must have been supplemented by a level of co-operative altruistic punishment by members of the group to suppress unsocial activities. This is likely to have been a product of vigilant sharing – every individual ensuring that their personal share was enough, and individually punishing the greedy (and, indeed, punishing those that did not themselves punish the greedy).

When the greedy are punished for their actions, simultaneously by the group or serially by individuals, they are likely to suffer in terms of breeding success, which enhances vigilant sharing as a fit strategy. Vigilant sharing in turn leads to reverse hierarchy, where alphas are suppressed by group action – alphas are alpha because they are greedy, and greed, in this social model, is not good. The whole model however, can be maintained with a simple friend versus foe identification system, and a willingness to change alliances to disfavour alpha-seekers. Reverse hierarchy does not by itself require in-group versus out-group identification.

It seems, therefore, that the key metaphor of this paper may be the product of an important late evolutionary event in our journey to being human. Without it, the complexities of our social structures, which we seem to value so highly, would be impossible.

Does this get us to language?

The final question that must be addressed in this paper is whether the metaphor, THE GROUP IS AN ENTITY, helped to move our ancestors towards linguistic communication. The answer to that is likely to be a qualified 'yes': a reified group is often represented by arbitrary cultural badges of membership; and, if arbitrary, those badges require a communication system which can represent both those arbitrary symbols and their meaning to new group members; but, if the communication has to be arbitrary and symbolic, it must be cognitively controlled. This is language in all but name.

Yet language is not a direct consequence of the instantiation of the metaphor, THE GROUP IS AN ENTITY, as a genetically-controlled cognitive concept; it is emergent from the needs of the type of group that the cognitive concept allows to exist. The cognitive reification of THE GROUP leads to the existence of actual arbitrary social groups, which leads to the need for badges of belonging, which in turn leads to the need for a communication system able to handle the complexities of individuals, groups, and individuals-within-groups. When a segmented, hierarchical and differentiated social structure appears, it requires a segmented, hierarchical and differentiated communication system to describe it.

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