Nice Guys Finish First:
The Competitive Altruism Hypothesis

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ABSTRACT

NICE GUYS FINISH FIRST: THE COMPETITIVE ALTRUISM HYPOTHESIS

By Charlotte L. Hardy

Altruism, the intention to benefit others at a cost to oneself, is one of the major puzzles in the behavioural sciences today. A review of the literature in Chapter 2 revealed that, over the past decades, two main evolutionary models of altruism have emerged, kin selection theory and reciprocal altruism theory. These models are well-founded in mathematical theory and they have received a lot of empirical support, yet questions remain about the extent to which they can fully account for the diversity and ubiquity of altruistic patterns in human society.

The aim of this thesis was to present and empirically test a novel theory of altruism, called competitive altruism, which I proposed may account for a range of altruistic behaviours among humans in particular, that the theories of kinship and reciprocity cannot easily explain. Competitive altruism is the process through which individuals attempt to outcompete each other in terms of generosity. It emerges because altruism enhances the status and reputation of the giver. Status, in turn, yields benefits that would be otherwise unattainable. The empirical chapters presented nine experimental studies that tested these various aspects of the competitive altruism hypothesis in small groups involved in a public good dilemma, a task that pits altruistic and selfish motives against each other.

In Chapter 3, the first of these experiments revealed that in a reputation environment when contributions were public, people were more altruistic. The most altruistic members gained the highest status in their group, and were most frequently preferred as cooperative interaction partners.

Chapter 4 presented two experiments, showing that, in a reputation environment, public good contributions increase even if these goods are already provided by others (Study 4) or are simply unattainable (Study 5). Wasteful contributions increased the status of the giver, suggesting that non-strategic generosity and cooperation have great signalling power.

Chapter 5 showed that high status members behave more altruistically than low status members. Furthermore, a rise in social status during a group task increases altruism, whereas a loss in status decreases altruism (Study 7). These results support the idea that by behaving altruistically group members "compete" for social status within their group.

Chapter 6 presented two studies that examined the status and reputation of those who engage in altruistic behaviour, for example, through contributions to public goods. Study 8 reports that high status occupations in British society are perceived to be those that involve contributing altruistically towards the community. Study 9 uses historical data and provides support for the hypothesis that altruistic contributions to three specific public goods can earn people their reputations.

The main conclusion drawn in Chapter 7, is that competitive altruism may provide a new way of thinking about human sociality. It helps to explain why humans are unusually altruistic and cooperative even (or especially) when they operate in large groups. Implications and limitations of the findings and ideas for future research from competitive altruism were also discussed.

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For Kai Patrick, our fantastic son, with love.

Charlie

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CHAPTER 1

INTRODUCTION AND OVERVIEW

Humans are social animals. This phrase is often stated in the social and evolutionary literatures (Aronson, 1990; Buss, 2004), but what does it actually mean?

The answer centres on issues of selfishness and altruism. Whereas most other mammals help each other only within small kinship groups, humans have the unique ability to form and cooperate within large social groups, which include many genetic strangers (McAndrew, 2002). For example, humans invest time and energy in helping other members in their neighbourhood and make frequent donations to charity (Van Vugt, Snyder, Tyler, & Biel, 2000). They come to each other's rescue in crises and disasters (Van Vugt & Samuelson, 1999). They respond to appeals to sacrifice for their country during a war (Stern, 1995), and they put their lives at risk by helping complete strangers in an emergency (Becker & Eagly, 2004).

Altruism, the intention to benefit others at a cost to oneself (Batson, 1998; Van Vugt & Van Lange, in press), is one of the major puzzles in the behavioural sciences today. Across many decades of research, social psychologists studying altruism and cooperation have identified numerous important factors that affect helping behaviour, such as empathy (Batson, 1981), closeness (Neyer & Lang, 2003), mood (Isen, 1970), values (Omoto & Snyder, 1995; Van Lange, Otten, De Bruin & Joireman, 1997), rewards for helping and costs for not helping (Piliavin & Charng, 1990; Schroeder, Penner, Dovidio & Piliavin, 1995; Van Vugt, 1998). Yet, social psychological models of altruism often do not address where these basic motivations come from or how they came to be so important in human evolutionary history (cf. McAndrew, 2002). For evolutionary theorists, altruism has always been something of an enigma. How could any organism engage in actions that seem to benefit others, but not themselves? It is suggested that these tendencies to help others exist in humans because of 1) genetically based predispositions to act prosocially and 2) the evolutionary success of people who displayed such predispositions (Buss, 2003; Dawkins, 1989).

Over the past decades, two main evolutionary models of altruism have emerged, kin selection theory (Hamilton, 1964) and reciprocal altruism theory (Trivers, 1971). These models are well founded in mathematical theory and they have received overwhelming empirical support (Axelrod, 1984; Burnstein, Crandall, & Kitayama, 1997; Neyer & Lang, 2003; Van Lange & Semin-Goosens, 1998). Yet questions remain about the extent to which they can fully account for the diversity and ubiquity of altruistic patterns in human society (Fehr & Fischbacher, 2003; McAndrew, 2002). Perhaps as a consequence, social psychologists have found it difficult to relate their theories and findings to the deeper-rooted evolutionary theories of kinship and reciprocity. It appears that something is missing, but what?

The aim of this thesis is to present and empirically test a novel theory of altruism, called competitive altruism, which I propose may account for a range of altruistic behaviours among humans in particular, that the theories of kinship and reciprocity cannot easily explain. Competitive altruism is the process through which individuals attempt to outcompete each other in terms of generosity. It emerges because altruism enhances the status and reputation of the giver. Status, in turn, yields benefits that would be otherwise unattainable.

Thesis Structure

The following chapter presents a review of the literature pertaining to the major altruism research, from both a psychological perspective and from the evolutionary theories of kin selection and reciprocity. It subsequently argues a case for the development and consideration of alternative explanations for certain types of altruistic behaviour. I then present the novel idea of competitive altruism, outline the theory and conditions and finally formulate the predictions on which the experimental chapters of this thesis are based. The later chapters present nine experimental studies which test these various aspects of the competitive altruism hypothesis in small groups involved in a public good dilemma, a task that pits altruistic and selfish motives against each other (Dawes, 1980; Komorita & Parks, 1994; Van Vugt & De Cremer, 1999).

The first and primary of these experiments relates to the necessary conditions for competitive altruism to occur and the potential benefits that altruists may receive

(Chapter 3). The next concentrates on the occurrence of wasteful altruism (Chapter 4). Chapter 5 examines the influence of assigned status on altruistic behaviour. The final experimental chapter examines competitive altruism in the real world, using both archive and questionnaire data.

CHAPTER 2

REVIEW OF THE LITERATURE AND AN INTRODUCTION TO COMPETITIVE ALTRUISM

"There are long term benefits of participating in a 'conspiracy of doves'. If only everybody would agree to be a dove, every single individual would benefit"

-Richard Dawkins, *The Selfish Gene,* 1976

The following chapter comprises three parts. The first part begins by considering two major approaches to altruism, kin selection and reciprocity. I discuss why, although these ideas and theories are well founded and can account for many types of altruism, there is still a necessity to explain the existence of certain aspects of naturally occurring cooperative behaviour – specifically, altruism that occurs between unrelated individuals and without direct reciprocity, such as contributions to collective action. I will then introduce a novel theory of altruism, called competitive altruism, which attempts to provide an explanation for these types of altruistic behaviour. The second part of the chapter will present some general hypotheses or implications derived from this theory and discuss evidence to support these implications, synthesising findings from anthropological, sociological, biological research. This will form the framework for the hypotheses to be tested in the empirical studies. The final part provides an overview of the experimental studies that test some specific predictions from competitive altruism and make up the empirical chapters of this thesis.

I. Review of the Altruism Literature

This thesis will be presented from a broadly evolutionary psychology perspective, and will test a range of evolutionary hypotheses derived from competitive altruism theory. As such, I will make use of many of the basic modes of evidence as identified by Schmitt & Pilcher (2004). In particular this review will draw on hunter-gatherer evidence, cross cultural evidence, non-human evidence and theoretical economic models alongside psychological evidence. There are many

benefits to taking a interdisciplinary approach like this, namely that it enables integration and understanding of the existing literature and provides a broader, more rounded basis from which to derive and test some predictions. For example, social psychologists are generally interested in studying proximal explanations for altruism, trying to establish which factors decrease or increase the likelihood of altruism towards others through empirical research – the 'how' question. In contrast, evolutionary theorists are interested primarily in the ultimate functions of altruism, trying to figure out whether this type of behaviour could have been selected for in human evolutionary history – the 'adaptation' or 'why' question (Schmitt & Pilcher, 2004).

Take, for example the use of anthropological evidence from hunter-gatherer cultures. These societies are thought to be largely uninfluenced by western culture and practice a foraging way of life. There is evidence that these societies more closely resemble the conditions under which we evolved that to modern societies (Tooby & DeVore, 1987). These societies can therefore be used to try to build up a picture of our ancestral past and the selective pressures that were involved and the adaptive problems our ancestors faced. So, for example, in hunter-gatherer societies large game hunting invariably occurred in groups – to be successful, problems to do with cooperation and coordination must have been solved. This may help in our understanding of current cooperative behaviours. Combining the proximate and ultimate levels of analysis can therefore provide a much richer perspective on the origins of altruism than any singular approach can.

So to start - how can we explain the moral altruistic tendency of our species? First, we must be clear about what we mean by altruism. Writers' in different disciplines define altruism and research altruism differently. At one extreme, sociobiologist Wilson defines altruism as self-destructive behaviour performed for the benefit of others (Wilson, 1975). More generally sociobiologists regard altruism as a behaviour that benefits the actor less than the recipient. Within the social dilemma literature altruists are defined as those who give more weight to others' than to their own outcomes (Liebrand, 1986). In common between these definitions is the joint emphasis on the cost the altruist and the lack of focus on motive. From the viewpoint of psychology, the definition of altruism is more complex. In the main it refers to both intentions *and* the amount of cost or benefit to the actor (Krebs, 1987), so the focus tends to be on motivation. Much of the work in the field of social

psychology has concentrated on *why* people would help others, examining factors such as personality or social influence that motivate prosocial or altruistic actions; and *when* people help in both emergency and non emergency situations, focusing on situation factors.

Throughout this thesis, the term altruism is used to refer to a behaviour that is costly to the actor and beneficial to others. The actor may not necessarily consciously form an intention to benefit another for an act to be called altruism. Research suggests that humans are often not aware of why they behave as they do (Bargh & Chartrand, 1999).

Altruism and Collective Action

The focus of this thesis is altruism within the area of collective action or public goods. By definition a public good is any good that is, 1) Non-rivalrous – its benefits fail to exhibit consumption scarcity; once it has been provided, everyone can benefit from it without diminishing other's enjoyment of it and 2) Non-excludable – once it has been created, it is very difficult, if not impossible, to prevent access to the good; those who did not help provide it can access it alongside those who did (Davis & Holt, 1993). Examples of public goods include group defence, order and law enforcement, information such as scientific ideas and innovation; indeed any collective action where individuals have a strong incentive not to provide the good because the benefits are freely available to everyone once the altruist has incurred the cost. Although there are clearly individual differences in the extent to which individuals contribute to public goods (e.g. De Cremer & Van Vugt, 1999), there is plenty of evidence that human's frequently engage in this behaviour.

Dynes and Quarantelli (1980) reviewed a large number of studies on responses to disasters. They report that in general, high proportions of individuals help under disaster circumstances. Tens of thousands of people volunteered their help in the aftermath of the 2005 Tsunami, Hurricane Katrina, and in 2005 the National Blood Service collected over two million donations from some 1.3 million donors in the United Kingdom. By far the most frequent reason given for a donation was humanitarian or altruistic, though many donors also admit to feelings of pride. Studies have also found that the most regular donors were also more likely to make

charitable donations and do volunteer work than non-donors (National Blood Service [NBS], 2006). 22 million adults are involved in formal volunteering each year offering 90 million hours of formal voluntary work each week in areas such as art and sport, health and social care and environmental projects Six out of ten volunteers say volunteering gives them an opportunity to learn new skills, whereas half of all volunteers get involved because they were asked to help (Volunteering England, 2006).

Evidence for altruism towards a public good can also be found in other societies, such as hunter-gatherers. Many of these societies are thought are to be at least largely uninfluenced by western culture and it may be helpful to examine them to give us insight into how psychological mechanisms may tie in with human behavioural ecology. For example, the evolution of altruistic behaviour can be more closely examined by examining these societies and looking at why humans evolved to hunt big game. The suggestion that it was due to simple selection – so the hunter can eat their meat and survive better is problematic. Hawkes (1993) found that in the tribe she studied hunters had only a 3 percent chance of successfully killing a large animal, which meant there was a 97 percent chance of failure. Success rates rarely exceeded 10 percent. When hunters really needed to eat, they caught small animals. The second problem is even if men manage to kill big game, they have no control over how the meat is distributed as meat is shared very widely. Good hunters are not just reciprocal altruists because they know that bad hunters will never manage to repay them for all the meat they take, and reciprocity would favour hunting small game that was easy to defend from cheats. Hawkes has argued that meat from big game is a public good in the technical economic sense – it is a resource that one cannot exclude others from sharing - which leads to a paradox – hunting's costs are borne by the hunter alone in terms of time and energy spent learning how to hunt, making weapons, tracking animals, using weapons and catching prey. The hunter also risks injury or death. Yet hunting's benefits are spread throughout the tribe, enjoyed by sexual competitors and unrelated offspring. Now hunting looks like a costly act of altruism.

It would be expected that altruism in such collective action situations would be selected against due to the obvious high costs involved for the provider with no apparent benefit to fitness, yet both experimental research and field studies have shown that altruism towards a public good does exist and seems to be a stable

phenomenon amongst interacting groups of people (e.g. Fehr & Gaechter, 2002). So why do it? What are the origins of this tendency to help others?

The View from Evolutionary Theory: The missing link?

The existence of altruistic behaviour has puzzled evolutionary scientists for decades. Since the development of Darwin's evolutionary theory (Darwin, 1859), one of the main challenges faced by subsequent theorists has been to find a satisfactory solution to the altruism problem (cf. Dawkins, 1976). It was recognised that organisms would sometimes engage in self-sacrificial behaviours to benefit others but it was not clear these apparent costs of helping others would convert into a realistic benefit to one's genes, by turning the material costs of altruism into survival or reproductive benefits. After all, natural selection favours traits and behaviours that benefit the reproductive success of their bearers, allowing these traits and behaviours to spread through a population at the expense of less successful designs (Barrett, Dunbar, & Lycett, 2002). For altruism to evolve at the individual level, the cost incurred by the altruist in the short term must be outweighed by some long-term fitness benefits for the altruistic act. How could altruism have been selected for in evolution?

Kin Selection

The first successful attempt to solve the altruism puzzle was Hamilton's (1964) inclusive fitness theory (also known as kin selection theory). According to this theory, natural selection would favour traits and behaviours that benefit either the organisms themselves or those who share a high degree of genetic relatedness, i.e. closely related kin, thereby allowing them to maximise their own inclusive fitness. Thus, caring for a grandchild could be seen as adaptive given the genetic relatedness between grandmother and grandchild. Kin helping probably accounts for a large amount of altruism in human society today. In situations when the costs of helping are substantial, (such as in life or death situations) helping increases as a function of genetic relatedness (Burnstein, Crandell & Kitayama, 1997). Similarly, when in these situations humans frequently turn to their families for practical, financial, and emotional assistance regardless of whether they live as a close family unit in a village in the Amazon or are dispersed over a large country such as the

USA (Amato, 1993). When we die we tend to leave more of our estate or wealth to close kin, in particular, to our offspring (Smith, Kish, & Crawford, 1987).

Some researchers have argued that cooperation with strangers is a relatively recent occurrence. The genus *Homo* is about two million years old and during most of that time humans probably lived in relatively small groups of close kin (Barrett, Dunbar, & Lycett, 2002). So the social behaviour of humans evolved in a very different environment than today's world where people often live apart from extended kin. People typically grow up in relatively isolated nuclear families and then move away to places where no kin are present – modern social groups therefore often consist of a mixture of kin and non-kin. According to the big mistake hypothesis (Boyd & Richerson, in press; Tooby & Cosmides, 1996), humans may behave more altruistically towards others than should be expected. This may be because they 'mistake' wider society for kin (i.e. their behaviour or their psychology has evolved in the context of living in kin groups so we have a predilection for cooperation with all members of any given social circle). So cooperation in today's world is a maladaptive by-product of kin selection. The big mistake hypothesis argues that human kin detection systems are imperfect because, being around kin for much of human history, there was no need to develop them. Instead humans use cues to distinguish between kin and non-kin - physical similarity, similarity in attitudes, culture or language, and geographical proximity could potentially all be used as kinship cues (Rushton, 1989), but are also all fallible for detecting kinship in modern society. Nevertheless these cues remain important in deciding whom to help. For example, adults report greater willingness to assist unrelated children who have similar facial features (DeBruine, 2004), people are more likely help a stranger in an email study if they share the same surname (Oates & Wilson, 2002), and people are even more willing to help those with similar attitudes (Park & Schaller, 2005).

It remains to be seen whether or not such cues do in actual fact activate a kin detection system, and exactly how this could be empirically verified. Furthermore, the fact that most cultures have detailed kin classification systems suggests that humans are well aware of who is kin or not. Finally, an erroneous kin system cannot really account for the all aspects of human altruism, because there does not seem to be any inclusive benefits associated with rewarding altruism, especially in interactions with strangers. There is no doubt that kin selection is a major force in

the evolution of altruism but to what extent can it account for the unique aspects of human cooperation and altruism towards non kin?

Reciprocal Altruism

The theory of reciprocal altruism (Trivers, 1971) currently dominates the discussion of non-kin altruism arguing that altruism towards unrelated individuals can be maintained because altruistic acts by one individual are reciprocated by an altruistic act from another. According to direct reciprocity, individuals can benefit from being nice to one another if they interact often enough to build up trust. By keeping their promises, fulfilling their contracts and reciprocating altruism they might obtain larger benefits over the longer term. The theory suggests that many cases of apparent altruism are rationally selfish if viewed over the longer term. In reciprocity there are three defining features – individuals alternate in giving and receiving benefits; each act has a cost to the giver and benefit to the receiver; and giving is contingent on having received. The whole sequence is mutually beneficial. As Roberts (1998) points out, reciprocity should not be thought of as an all encompassing term for eventually benefiting from altruism: it refers specifically to interactions (usually between dyads), whereby a short term cost paid by one individual leads it to a greater benefit from another individual.

The reciprocity approaches have yielded many results in terms of explaining a wide range variation in human subsistence and reproductive strategies - reciprocity can involve an exchange of services that an individual cannot ever perform for itself (such as impala who are unable to groom their own necks; Hart & Hart, 1992), or it can involve exchange of different services at the same or different times (e.g. information for money, Blau, 1955), or it can involve provision of a service at one time that can be returned at a later date (e.g. food sharing among vampire bats, Wilkinson, 1984). However, a problem arises with using this cost – benefit type approach to human behaviour in that, in many human societies, large amounts of time and energy are expended on behaviours that, on the face of it, have little to do with direct fitness benefits (such as energy acquisition, survival or the direct production of offspring). In many cases costly activities actually seem to compromise at least some components of fitness.

In addition, the stability of reciprocal altruism is problematic, because altruists may be exploited by individuals who fail to reciprocate – for example, two

neighbours could decide to engage in reciprocal exchange by looking after each other's pets when the other is on holiday, but one neighbour might move home before fulfilling his obligation. The ability to detect non-reciprocators or "cheaters" (as Cosmides & Tooby (1992) suggest, the evolved architecture of the human mind would include procedures that are specialised for detecting cheaters) might provide some assurance against exploitation, but it is hard to see how reciprocal altruism could account for altruism and cooperation in one-off encounters, often in large groups of strangers - acts that cannot be directed towards particular individuals , those, such as the provision of public goods that benefit a group (Batson, 1998; Penner & Finkleston, 1998; Snyder, Omoto, & Lindsay, 2004).

So, the mystery about the origins of altruism remains. Can altruism ever evolve in interactions between genetic strangers if these actions are not reciprocated? We believe it can if we are willing to consider the idea that altruistic actions are in fact a signal about the altruist's personal qualities. Altruism, if publicly displayed, increases the reputation and status of the altruists, which makes them more attractive interaction partners, providing them benefits that are not available to non-altruists. Reputation effects could be the "selective incentive" (Olsen 1965) that motivates certain individuals to do good for society.

Competitive Altruism

Alexander (1987) suggested that behaviours such as blood donation could be explained through the desire to be viewed as an altruist by the population at large and that there may be some benefits to having a reputation as an altruist. Competitive altruism theory is based on two simple foundations. First it assumes that there are individual differences in altruism. There are several reasons for this – mainly, because the altruism is often related to resources, only people with substantial resources can afford to be generous, as costly signalling theory (below) suggests. Other reasons may be that it is often easy to get away with cheating or free-riding. For example, in large and fluid societies where cheating may go undetected – the benefits of securing a reputation may be more limited. Or alternatively if a society is so small that interactions with strangers rarely occur – there may be no reason to invest in an altruistic reputation (Yamagishi, 1986). Second, in forming alliances there is competition between people for the most cooperative partners. As a consequence, people compete to behave more

altruistically than others and establish an altruistic reputation. But why should groups reward altruists with reputation or status benefits?

Costly Signalling. One explanation is offered via costly-signalling (Zahavi & Zahavi, 1997). Based on observations from the animal world, Zahavi noted that organisms often engage in behaviours that are costly to themselves in order to signal honest information about themselves. Zahavi's studied Arabian Babbler birds and discovered that they exhibit a number of behaviours that look altruistic. They act as sentinels for the group, they share food with non-relatives, they do communal nest care, and they mob predators. Reciprocal altruism theory predicts they should try to cheat, to reap the benefits without paying the costs. Instead, they do the reverse: they compete to perform the apparently altruistic behaviours. Dominant animals, upon seeing a subordinate trying to act as sentinel, will attack and drive off the subordinate, taking over the sentinel role. The birds try forcibly to stuff food down the throats of reluctant non-relatives. The Zahavi's propose they are using these 'altruistic' acts as handicaps to display their fitness, thereby attaining higher social status and better reproductive prospects within the group. Another classic example is the peacock's tail. The tail of a male peacock handicaps the owner, because it is extremely difficult to grow and limits his movement so that he becomes an easy catch for predators. This handicap can be selected for, however, because it advertises the peacock's quality as a rival or mate. "If he can grow a tail like this and be still alive, he must have good genes" is what female peacocks or rival male peacocks might think (if they can). Thus, handicaps like these benefit signallers by increasing the likelihood that they may be chosen as coalition partners or avoided in fights between rivals.

This theory suggests that altruism might qualify as a handicap. By spending excessive amounts of energy, time, and money on activities that are essentially unselfish, altruists advertise some desirable underlying quality that is costly to obtain and therefore hard to fake, such as resource control, genetic endowment, health or vigour (Smith & Bliege Bird, 2000; Sosis, 2000). An example might clarify this. A person who earns £100 might give £50 away to charity and still keep £50 for themselves, which is more than a person who only earns £40, who cannot give the same amount away. The information that is transmitted can benefit *both* the signaller and the observer of the behaviour. The behaviour can benefit the signaller by increasing their social status and thus the likelihood that he or she will be chosen

as a mate or an ally or that he or she will later be deferred to by would-be rivals. Through this, the altruists are able to recoup the costs of their display in the long run. Costly signals can benefit the observers simply because they provide them with useful social information.

Indirect Reciprocity. An alternative way of viewing the benefits that altruists derive from their behaviour is via indirect reciprocity (Alexander, 1987). This differs from the direct reciprocity discussed previously – at a basic level it works as follows: If for example, X is generous to Y, and Z is observing this, Z expects X to also be generous to him, and will therefore pick X in a future coalition. Equally, if X is being selfish towards Y, observer Z would want to avoid dealing with X in the future. So, in this model support is given to individuals who have helped others, so altruists are sometimes *rewarded* by the community as a whole. Groups may compensate altruists by giving them status because by doing so, they can continue to benefit from the presence of these individuals in their community. By contributing to a public good, an individual may build up a reputation for being generous. It is possible that this reputation information may be used in other contexts, for example, when deciding who to choose as a group leader (Milinski, Semmann & Krambeck, 2002).

Nowak & Sigmund (1998) proposed that the benefit gained from advertising one's prosocial tendencies through costly acts of altruism is the increased chance of becoming the recipient of another's altruistic act at a later date. They constructed computer simulations in which one of a pair of players could choose whether or not to donate help based on the potential recipient's behaviour in previous pairings with others. While their simulation showed that reputations did matter in choosing partners, experiments have also demonstrated that altruists are preferred targets of the altruism of third parties. For example, experiments conducted by Wedekind and Milinski (2000) showed that those who were altruistic more often received high marks toward their reputation for generosity, and this reputation translated into greater benefits received (donations were more frequent to receivers who had been generous to others in earlier interactions).

Whatever the precise mechanism, I suggest that when reputations are at stake, this is likely to create a competition between, on the one hand, observers competing for the most altruistic partners, and on the other hand, actors competing with each other in terms of generosity to advertise themselves as future exchange

partners, hence the term "competitive altruism" (Roberts, 1998). Unlike kin altruism and reciprocal altruism, competitive altruism provides a more promising account of the unique moral and altruistic attributes of humans. It has no problems in explaining why people cooperate in large groups of strangers – in fact, the larger the group the greater the audience. Further, it explains why people help when there is very little chance of reciprocation such as volunteering to work with a terminally ill patient, or, like judges, police officers, or traffic wardens, they punish someone who has not harmed them personally (Van Vugt, Snyder & Biel, 2000).

II General Hypotheses from Competitive Altruism

Competitive altruism is just one of several pathways to the development of cooperation in human groups. It is important to recognise the kind of altruism that is most likely to be explained it. We therefore need to specify conditions under which competitive altruism is likely to have evolved and is phenotypically expressed. The following section outlines some general conditions and hypotheses that arise from the competitive altruism approach. Each hypothesis will be introduced with supporting evidence from the biological, psychological, and anthropological literatures.

1. The behaviour must be costly for the actor to display (and altruists should not expect a direct return from their generosity).

If altruism is to act as a signal that makes the receiver behave preferentially towards the altruist, then it must be a reliable indicator of a person's resources, motivations, and / or intentions. If it is cost-free and easy to perform by anyone then observers would not be able to discriminate between people who are genuinely altruistic and cheaters, thus making the signal unreliable. Because altruism is by definition costly, it is particularly likely to have evolved into an honest signal. Unlike reciprocal altruism, competitive altruism argues that people need not always get a direct return from their investment. I have already suggested that people are willing to engage in behaviour that helps the collective good, but here I look in detail at the evidence that people will be altruistic, with no expectation of a return.

Anthropological Evidence. There are various examples of costly displays of altruism found in the anthropological literature. On various Melanesian islands, a

few years after someone's death, the family of the deceased puts on an elaborate feast to commemorate the dead person. All the guests receive a bounty of food and gifts, with no expectation of reciprocation. One of the dishes is turtle meat, which is very difficult to obtain. Giving out as much turtle meat as possible serves as an honest signal of the physical quality of the family members, increasing the family's reputation and esteem (Smith & Bliege Bird, 2000). Similarly, among Native American clans in the North-West Pacific, it is common for chiefs to organise large feasts - a "potlatch" - to which members of neighbouring clans are invited to indulge in a range of delicacies such as salmon. This public display of generosity possibly serves to build and strengthen coalitions between neighbouring clans in the face of threats from rivals (Bliege Bird & Smith, 2005).

Humans are also unique in that they invest time and energy in helping other members in their neighbourhood and make frequent donations to charity (Van Vugt et al., 2000). They come to each other's rescue in crises and disasters (Van Vugt & Samuelson, 1999). They respond to appeals to sacrifice for their country during a war (Stern, 1995), and they put their lives at risk by helping complete strangers in an emergency (Becker & Eagly, 2004).

Experimental Evidence. Findings from experimental social dilemma research support the proposition that some people are 'natural' altruists in public goods situations. De Cremer & Van Vugt (1999) report that individuals vary in the level of altruism they display according to their dominant social value orientation. Those people who could be classified as individuals with a cooperative orientation act more prosocially (i.e. contribute more highly to a public good) than people with individualistic and competitive orientations - proself orientations. In further studies it has been reported that even if there is no expectation of future interaction between complete strangers in the laboratory, around 40% of people make an altruistic move (Fehr & Fischbacher, 2003; Van Lange, 1999). Similarly, in a recent study, Kurzban & Houser (2005) report that in a sample of students playing a public goods game, 13% were found to be what they termed 'co-operators' – people who made a risky choice to give generously to the public good at a cost to themselves regardless of how others behaved and even though it was uncertain that their actions would be rewarded. In fact, ultimately their actions were not rewarded (at least not financially) as these people did not earn any more in terms of payoffs than others in the group who were not altruistic (the 'reciprocators' or 'free-riders').

Non-human Evidence. These displays of generosity are also seen in the activities of some non-human primates, particularly with chimpanzees. After killing a small animal, like a colobus monkey, chimpanzees sometimes share their meat with other members in their troop, particularly females. It is not clear what, if any, benefit they may ultimately receive for this behaviour but it is possibly related to increased mating opportunities (De Waal, 1996). There is also some evidence that chimpanzees select grooming partners based on their reputation as a reciprocator (Barrett, Henzi, Weingrill, Lycett, & Hill, 2000). Furthermore, captive chimpanzees only solicit food from humans that have reputations as food-sharers (Russell & Dunbar, 2005). Finally, there is evidence that in Arabian babblers, a highly social bird species, individuals compete for prestige through a range of seemingly altruistic behaviours. They act as sentinels for the group, they share food with non-relatives, they do communal nest care, and they mob predators (Zahavi & Zahavi, 1997).

Critical assessment. The anthropological, psychological and non-human literatures provide indirect support for costly altruism. This is encouraging, as convergent evidence from a variety of methods and sources of data provides a powerful basis from which to test hypotheses about possible adaptations (such as altruism). It suggests that these conclusions do not stem from a single methodological or theoretical bias. The main limitation is that the much of the data is anecdotal or observational and thus conclusive support cannot be assumed. For example, the work of Zahavi has been criticised for making assertions about likely outcomes, without presenting any formal game theory models. The research often presents hypotheses about traits without any experimental tests of how variations in the traits affect measures of efficiency or of reproductive success. Often the research is based on field observation anecdotes concerning behaviours and speculation about their significance. For the most part, the focus of much of the research described above has been somewhat different to what is being proposed in this thesis – for example the social psychological research has often focussed on the proximate explanations for the behaviours reported so again, it is not possible to draw firm conclusions.

Conclusion. There is much indirect support for the idea of costly altruism – from both social psychology and anthropological literature, however no research to date has specifically addressed this as a primary hypothesis, which is something this thesis aims to do under experimental conditions.

2. The behaviour must be easily observable to others

For a particular act to be classified as a signal, it must be readily observable to others. Hence, there must be an audience for it who interpret the act (or the intention behind it) as altruistic, and use this information to form a judgment about the giver. Ideally, they would pass on this information to multiple others in the form a reputation. So, there should be a preference for performing altruistic acts in large crowds and people should be more generous in public than in private situations Competitive altruism therefore predicts that people are more likely to aid someone if they can be identified as helpers. The audience should also be interested enough in the act to be paying attention. For many acts of altruism there is likely to be an audience, because there are obvious benefits for potential recipients from being in the presence of an altruist.

Experimental Evidence. The experimental social psychology literature supports this prediction. For example an increase in the visibility and decrease in the anonymity of individuals enhances their cooperation in social dilemmas (Axelrod, 1984; Fox & Guyer, 1978; Jerdee & Rosen, 1974). Overt communication between group members increases cooperation and decreases the incidence of free-riding. This may be because communication helps trust to develop and allays fears of being a 'sucker' (Dawes, 1988). Even a pair of artificial eyes on a computer screen enhances people's cooperation more in an otherwise entirely anonymous situation (Haley & Fessler, 2005). In another study, members of four person groups were more likely to contribute to a public good if they knew that afterwards they could be selected to participate in a dyadic cooperative game with one of the other group members (Barclay, 2004). People are also more likely to give to street beggars in the company of a friend than when alone (Goldberg, 1995). Glazer & Conrad (1996) show that anonymous donations to charity are very rare – suggesting that people donate for reasons other than to simply provide a good. Finally, Harbaugh (1998) considers a model in which bigger gifts impart more prestige to the giver. By reporting gifts in carefully selected categories (such as the "$1000–$2000 donors club") a charity can push people to "round up" their contributions to get into higher prestige groupings. This model can explain the tendency of charities to report most gifts in categories. It also suggests that to maximise contributions there should always be a separate category for the single highest contribution.

Real –world Evidence. A look around the modern media also supports this prediction. Heroic acts of strangers helping in emergencies, soldiers saving the lives of comrades, and philanthropic events like Comic Relief and Live Aid attract large crowds. People also spend a great deal of their conversations gossiping about the moral aspects of others' behaviour (Dunbar, 2004). Large groups create opportunities for both altruists and cheaters, and it probably depends upon the vigilance of the crowd whether it pays to be generous and helpful.

In 1996, *Slate* editor Michael Kinsley responded to remarks Ted Turner made in an interview: The CNN founder bemoaned the influence of the *Forbes 100* list of richest Americans, saying it discouraged the wealthy from giving away their money for fear of slipping down the rankings. Turner suggested that a list of charitable contributions could inspire rich Americans to compete in a more beneficial way. Thus the *Slate 60* was derived to attempt to fuse these conflicting aspects: generosity and competitiveness. At the time, *Slate* was owned by Microsoft, whose CEO Bill Gates was already the world's richest person, and famous for *not* giving away his wealth. Some of the biggest names on the *Forbes 100*—Gates, Michael Dell, George Soros, Michael Bloomberg, etc.—are now also regulars on the *Slate 60* – highlighting that broadcast opportunities may important in inducing altruism (Forbes, 2006).

Critical Assessment. Although competitive altruism predicts that people should be more willing to help if there is an audience, there is considerable evidence from bystander intervention experiments which suggests the opposite: people are less inclined to help in large groups than in small groups. One explanation is that in these experiments helpers were non-identifiable (Latané & Darley, 1970) and to evoke competitive altruism altruists must be identifiable. Nevertheless, there is some convincing support for this hypothesis from economic models (which require empirical work to test them and confirm them) and experimental research, albeit rather limited. One limitation is that they have all used similar methodologies (frequently, contributions in economic games) to demonstrate the effects. A further critique is that the studies have not been directly concerned with identifiability of behaviour and reputation concerns as such, perhaps with the exception of Barclay (2004) who utilised game theory methods but focused more on trust of altruistic versus non-altruistic individuals. Again, much of the evidence presented could be described as anecdotal or based on informal observations of real – world behaviours.

Thus there is still the need for laboratory experiments to test this hypothesis and draw more conclusive results

Conclusion. There is abundant evidence that suggests reputation concerns lie at the heart of many altruistic activities even in largely (but not exclusively) anonymous laboratory settings. This is one of the primary conditions for competitive altruism that will be tested in this thesis.

3. There must be long-term benefits of altruism

For altruism to evolve at all, there must be compensating benefits in the long term for costly short term altruistic behaviour. A gain in social status may be one such benefit. But, how does this increased status bring about longer term benefits? One way might be through increased access to coalitions. While cheaters and non-reciprocators are at risk of being increasingly ostracised from groups, altruists are in huge demand as coalition partners in future social exchanges like sharing food. The benefits may also be more subtle. For example, there is evidence of a relationship between health and longevity and altruism (this may be via social status), so altruists may recoup their short-term costs by living a healthy, longer life. It is also possible that altruists may recoup the costs of their actions by increasing their attractiveness as a mate (again possibly through status), thus being able to attract more and better sexual partners and gain reproductive advantages (Miller, 2001; Roberts, 1998). I examine these in more detail below.

3a. Altruists get social status

As suggested above, one all-encompassing way that altruists may benefit is through a gain in social status. Status brings a number of advantages to those that hold it. Researchers such as Goode (1978) and more recently, Marmot (2004) have argued that striving to succeed in the social hierarchy is a strong human motive. Research has shown that an individual's status has real value – that is, humans tend to prefer a higher ranking in a group to a lower ranking. This assumption is based on centuries of observations of human behaviour (e.g. Veblen, 1973). Striving to achieve status in one's social group is ubiquitous and important, as status attainment has positive consequences for the individual. An individual's status within their group positively affects; self esteem (Rosenberg and Pearlin, 1978), influence (Simonton, 1994), access to resources and opportunities (Jones and Gerard, 1967), personal health and wellbeing (Marmot, 2004), and reproductive success (Kaplan &

Hill, 1985), (these benefits are discussed in more detail below). These positive consequences of high status may explain why virtually all social animals have a preference for higher status over lower status (Wilson, 1975), why they try to protect and maintain their position and why they may react negatively to losing status.

Evidence. There is evidence that altruists do get status. Among the Shuar, individuals who take on voluntary administration jobs, are rewarded with status and prestige (Price, 2003). Such social benefits might be the main reason for killing large game in hunter-gatherer societies (Hawkes, 1993). Milinksi, Semman, & Krambeck (2002) showed that altruists (donors to charity) improved their reputation (in another context). A survey of 'society women' showed that as a result of their generous giving they gain in social prestige and power (Daniels, 1988).

3b. Altruistic emotions and behaviours are associated with greater well-being, health and longevity (this may be directly or as a side affect of status).

It has been suggested (see below) that altruism may result in deeper and more positive social integration, distraction from personal problems and anxiety, enhanced meaning and purpose in life, a more active lifestyle that helps to counter isolation, and the presence of positive emotions such as kindness that displace negative emotional states. It is entirely plausible, then, to suggest that altruism enhances both mental and physical health. This is not a new idea - health is at the core of Dickens' story of Scrooge - with each new benevolent act, Scrooge became more buoyant, until finally he was among the most generous of men in all of England and appeared all the more happy and healthy, following the pattern of the "helper's high" (Luks, 1988).

Experimental Evidence. One study compared retirees who volunteered with those who did not (Hunter & Lin, 1980–1981). Volunteers scored significantly higher in life satisfaction and will to live and had fewer symptoms of depression and anxiety (controlling for demographic and other background variables). The researchers concluded that volunteer activity helped explain these mental health benefits. In another study, families of recently deceased loved ones reported a psychological benefit from their decision to donate organs (Batten & Prottas, 1987). More recent studies also confirm an association between altruistic activities and both well-being and life satisfaction in older adults (Dulin & Hill, 2003; Liang, Krause, & Bennett, 2001). Midlarsky and Kahana (1994) associated adult altruism (voluntary behaviour) with improved morale, self-esteem, positive affect, and well-being.

Altruism may also impact physical health. Oman, Thoresen & McMahon (1999) found that amongst retiree's those who volunteered for two or more organisations experienced a 44% lower likelihood of dying during the study period than did non-volunteers (after controlling a range of other factors (such as age, gender, number of chronic conditions, physical mobility, exercise, social support etc). Specifically, "the 44 percent reduction in mortality associated with high volunteerism in this study was larger than the reductions associated with physical mobility (39 percent), exercising four times weekly (30 percent), and weekly attendance at religious services (29 percent), and was only slightly smaller than the reduction associated with not smoking (49 percent)" (Oman et al., 1999, p. 310). On a cross-cultural level, Krause, Ingersoll-Dayton, Liang, and Sugisawa (1999) studied a sample older adults in Japan, examining the relations among religion, providing help to others, and health. They found that those who provided more assistance to others were significantly more likely to indicate that their physical health was better. The authors concluded that the relation between religion and better health could be at least partly explained by the increased likelihood of religious persons helping others.

Brown, Nesse, Vonokur & Smith (2003) reported an association between reduced risk of dying and giving help (in pensioners) but found no association between receiving help and reduced death risk. They concluded that those who provided no instrumental or emotional support to others were more than twice as likely to die in the 5 years (the experimental period) as people who helped spouses, friends, relatives, and neighbours.

Studies using biological markers provide a stronger basis for claiming that altruistic emotions and behaviours *cause* better mental or physical health. If someone is depressed or physically disabled, it is less likely that he or she will engage in helping behaviours. In this sense, there is a selection of the healthy into altruism, and this partially explains the better health of altruists. However, there is more to this story. People engaged in helping behaviour do generally report feeling good about themselves, and this has measurable physiological correlates. Studies using biological markers look at individuals before and after engagement in altruistic moods and behaviours and indicate immune-enhancing biological changes Altruistic emotions can gain dominance over anxiety and fear, turning off the fight–flight response. Immediate and unspecified physiological changes may occur as a

result of volunteering and helping others, leading to the so-called helper's high (Luks, 1988). Two thirds of helpers report a distinct physical sensation associated with helping; about half report that they experienced a "high" feeling, whereas 43% felt stronger and more energetic, 28% felt warm, 22% felt calmer and less depressed, 21% experienced greater self-worth, and 13% experienced fewer aches and pains. Despite these reports, the physiological changes that occur in the body during the process of helping others have not yet been scientifically studied. However, Field et al. (1998) showed that older adults who volunteer help infants at a nursery school have lowered stress hormones, including salivary cortisol and plasma norepinephrine and epinephrine. Lowering of cortisol is associated with less stress (Lewis, Amini & Lannon, 2000). The argument for causality is further strengthened by the inarguable assertion that emotional states of unselfish love and kindness displace negative emotional states (e.g., rage, hatred, fear), which cause stress and stress-related illness through adverse impact on immune function (Fredrickson, 2003; Sternberg, 2001). Thus, the cultivation of other-regarding affections eliminates negative emotional states that are often harmful to health.

3c. Altruists gain increased access to opportunities

It might pay to invest in developing an altruistic reputation because being seen as an altruist would create opportunities unavailable to non-cooperators. It thus became possible for cooperators to team up in a "conspiracy of doves" (Dawkins, 1976) and exclude non-cooperators from groups. One way this might manifest is through altruists being chosen (or helped) in subsequent interactions or relationships.

Evidence. Experiments have shown some clear benefits for the altruists. A study by Milinksi et al (2002) reported that when individuals were involved in two games at the same time, a public goods game and a reciprocity game, people in the latter game donated more to people who acted altruistically in the public goods game. Barclay (2004) showed that people who were more altruistic in a public goods game were trusted with more money in a subsequent game.

Among the Ache of Paraquay, individuals who share more than average with others in good times, tend to receive more food from people when they are sick or injured than those who have been less generous in the past (Gurven, Allen-Arave, Hill & Hurtado, 2000). Thus, sharing food in good times serves as an insurance policy to cover for bad times.

In nonhuman grooming partnerships good reciprocators prefer to interact with each other (Barrett, Henzi, Weingrill, Lycett, & Hill, 2000). This is similar to Seyfarth's (1977) model of primate grooming where there is competition to associate with the highest-ranking individuals (see Schino, 2001, for a review).

3d Altruists have increased mating / reproductive success

It is also possible that altruists may recoup the costs of their actions by increasing their attractiveness as a mate, thus being able to attract more and better sexual partners (Miller, 2001; Roberts, 1998). Perhaps this is the reason why males tend to be especially kind and generous in the presence of females (Campbell, Simpson, Stewart & Manning, 2002; Goldberg, 1995).

Evidence. Bliege Bird, Smith & Bird (2001) have shown that turtle hunters among the Meriam benefit from producing these costly signals (turtle hunting is costly in terms of time, materials and effort and the food is shared unconditionally thus the behaviour is an efficient means of broadcasting these qualities). They found that hunters gain greater social recognition, an earlier onset of reproduction, higher age-specific reproductive success and higher quality mates than non hunters. Jensen-Campbell, Graziano, & West, (1995) found that males who are more helpful and altruistic were rated higher on all measures of attractiveness by female participants than males who were not. Perceived attractiveness of males was greatest when prosocial behaviour interacted with high dominance.

3e Group level benefits for altruists.

It is also possible that altruists profit indirectly: Being in a group with altruists, their group would fare better in competitions with groups containing fewer altruists (Alexander, 1987; Darwin, 1871; Sober & Wilson, 1998) so altruism would then be selected for. Members of a successful group would likely be innately oriented to other-regarding behaviours, the inhibition of which would not be salutary. Anthropologists discovered that early egalitarian societies (such as the bushmen) practice "institutionalised" altruism where helping others is not an act of volunteerism but a social norm. Perhaps contemporary technological cultures are isolated in various respects and as such have strayed far from our altruistic tendencies (Putnam, 2001). Lee (2003) suggests a considerable evolutionary selective pressure for altruistic activity in older adults. In contrast to other species, human beings live and work well past their reproductive years. Lee suggests that a

species will evolve to the optimal point of investment of older adults in the well-being of grandchildren. In other words, the selective advantage to youth of grandparenting may explain human longevity well past the stage of reproductive potential. There is some evidence that natural selection is at work through the improved survival rates of grandchildren who are helped by both parents and grandparents. This holds true today in a variety of ethnic groups, including the African American community (Gallup & Jones, 1992). If older adults are oriented toward helping behaviours toward grandchildren, this helping inclination can be manifested in a broader social life. In a similar vein, maybe giving your life for a good cause (martyrdom) might enhance the status of your family from which people who share your genes can benefit.

Critical Assessment. It should be kept in mind that significant findings regarding health in relation to altruism in population studies are expressed (a) on average, (b) across a given population, and (c) all things being equal. In other words, what we can conclude, at best, is that altruism is one of the factors that increases the odds of well-being, better health, or survival in many people; it is no guarantee of good health. This could be said of any ostensible protective factors— for example, good diet, low blood pressure, not smoking, or not living in poverty for example. However, these results are widespread and cross cultural and backed up by the biological markers evidence.

Barclay (2004) reported that although people trusted high contributors more than low contributors, participants did not send more money to the highest contributors than to anyone else. This is a surprising result and similar to Wedekind & Milinski (2000) and suggests that there may be a difference between gaining trust or status and how this actually manifests as a benefit.

Overall, although there are limited experimental studies that have focussed on long term benefits to altruists, the above review provides a comprehensive range of evidence from which one can infer that potentially there are many. Health and longevity, increased access to coalitions, mating partners or group benefits may all be possible.

Conclusion. Taken together, these findings suggest that altruism may be influenced by reputation needs and that having an altruistic reputation brings benefits to individuals that would otherwise be unattainable. Although investigation into long term benefits to altruists are outside the scope of this thesis, the altruism-

status relationship will be explored in detail in this thesis. For example, by asking are group members who contribute more to the public good given more status and prestige than other group members? Are altruists in the public good game chosen more often as coalition partners in a subsequent game?

4. Altruism must be a reliable indicator of some quality.

A fourth prediction from the competitive altruism hypothesis is that altruism must be a reliable indicator of some underlying personality trait or quality. In other words, not everyone can afford to be generous all the time (Zahavi & Zahavi, 1997).

Ordinarily, costly signalling theory views signals as "indicator traits" of underlying qualities, with simply a contingent connection between signal and quality. Thus, a signal such as a peacock's tail is an indicator of male vigour and hence (on average) genetic quality; only those cocks who are vigorous, disease-resistant, and excellent foragers can afford the cost of producing, maintaining, and dragging around a heavy and showy tail (Petrie 1994). But any trait that reliably indicated genetic quality would serve as well.

Previously I discussed how altruism may be considered a handicap, or a costly signal, so what could altruism signal? The most obvious answer (aside from generosity itself) is resources. By engaging in costly altruism, people signal that they can afford to help others rather than themselves. Hence, altruism conveys both resource potential and generosity, an ideal combination in an exchange partner.

Anthropological Evidence. A variety of political systems, ranging from the semi-egalitarian "big man" systems of Melanesia to the stratified chiefdoms of the Northwest Coast Indians, appear to display various elements of this costly-signalling dynamic of garnering political support through magnanimity (Boone 1998). In these cases, and arguably in many instances of electoral politics in modern industrialized democracies, political candidates use distributions of goods to honestly signal their ability to benefit supporters in the future. The big man, chief, or congressional candidate encourages others to donate wealth or labour in his support by displaying honest signals of his skill in accumulating resources, thus eliminating the most problematic aspect of delayed reciprocity: the risk of default.

Experimental Evidence. In addition, altruism might signal kindness, trustworthiness, honesty, self-control, strength of character, or even intelligence. Although these qualities have not been directly investigated, experimental social

psychology has reported numerous personal qualities that correlate with altruism – which may be considered as possible sources of altruistic signalling. People who cooperate in a Prisoner's Dilemma are seen as more intelligent (Van Lange & Liebrand, 1991), presumably because it takes brainpower to appreciate the long-term benefits of cooperation. A positive relationship has been tentatively reported between intelligence and altruistic behaviour (Millet & Dewitte, 2006). They suggest that intelligence is associated with the ability to acquire resources, so as a consequence altruism may indirectly signal this ability.

De Cremer & Van Vugt (1999) report that individuals vary in the level of altruism they display according to their dominant social value orientation. Those people who could be classified as individuals with a cooperative orientation act more prosocially (i.e. contribute more highly to a public good) than people with individualistic and competitive orientations, proself-orientations – so altruism may signal general co-cooperativeness. People who are cooperative are generally viewed as more desirable group members (Moreland & Levine, 1982). Thus, altruism might be also be an indication of being a committed and resourceful group member, which is important for most working groups. For example, the visible signals of charitable donations that altruists receive, which range from tiny stickers to having a new library or hospital wing being named after them (Miller, 2000) may honestly advertise the fact that these people have a high group motivation – they are caring people.

Research has also shown that among heroic Jews in the holocaust – those who saved / helped others scored higher on social responsibility, empathic concern, altruistic moral reasoning, and risk taking traits (Midlarsky, Fagin Jones & Corley, 2005). Barclay (2004) found that those who contribute to a public good are seen as more trustworthy. Jensen-Campbell et al., (1995) found that males who are more helpful and altruistic were rated as higher in dominance and that altruists might also be seen as attractive romantic partners by members of the opposite sex, presumably because altruism signals resource potential.

Finally, people might attribute leader-like attributes to altruists. This is comparable with the results of Milinski et al., (2002) who found that public donations to a charity enhanced people's political reputation. Generosity, honesty, responsibility, and fairness are indeed seen as prototypical leadership qualities (Lord

& Maher, 1991). Moral forms of altruism could signal leadership potential, a desirable trait in groups (Van Vugt,2006).

Critical Assessment. The evidence presented in this section relies mainly on correlation and personality data. At most it provides some indirect support for the prediction, but is by no means conclusive evidence. One exception is Millet & Dewitte (2006) who attempt to evoke a signalling explanation for the proposed altruism-intelligence relationship. This is encouraging although some aspects of the methodology could be criticised – for example one measure of intelligence was reaction time and it is not clear how strong the link is between reaction time and intelligence. So, we need to ask if this is an accurate measure of intelligence. Also it is unclear whether this study truly measured altruism or rather a 'max joint' motivation (whereby an individual is motivated to achieve maximum outcomes for both players) as opposed to truly incurring a cost to themselves.

None of the research cited has measured if observers (i.e. potential recipients of the signals) rate the signallers as higher on any of these qualities – so there is no evidence that if altruism is a signal, people are 'receiving' the signal as it were and inferring qualities from the altruism.

Conclusion. In sum, people who display altruistic actions might be seen as possessing a broad class of desirable traits and qualities. Many of these are yet to be tested explicitly.

5. People should engage in wasteful altruism (only if there is an audience)

According to competitive altruism people would be willing to help a) when don't need to and b) when can't achieve the good (i.e. when the altruism is 'wasted'). The reason being is that people may establish a reputation by being altruistic. They would therefore compete to be the most altruistic as this should secure them the best reputation (again this implies that altruism is an honest signal). This is in line with the ideas of 'conspicuous consumption' (Veblen, 1973) where the behaviour serves a function to gain a reputation or advertise and reinforce a status position.

Anthropological Evidence. There are examples of this 'wasteful altruism' in the literature. Take, for example the astounding wastage involved in gladiatorial displays by the Roman elites in memory of their dead ancestors (Hopkins, 1983) or the lavish displays of late nineteenth century elites of New York (Wharton 1962).

These behaviours would seem to compromise aspects of fitness. This behaviour can also be seen in contexts such as the altruistic giving of turtle meat at funeral ceremonies in Micronesia to advertise the virtues of the family of the deceased (Smith & Bliege Bird, 2000), big-game meat distributions (Hawkes and Bliege Bird 2002, Bodenhorn 2000), big-man feasting (Wiessner and Schiefenhovel, 1995), Northwest Coast Indian potlatching (Boone 2000), and charity galas in capitalist society (Veblen 1973 [1899]).

To look in detail at a couple of examples, on Ifaluk Atoll in Micronesia, males sometimes engage in torch fishing (luring flying fish into nets at night with torches) when other fishing techniques would actually be more efficient. Torch fishing is a difficult, time-intensive activity, but also a highly visible activity that serves to advertise a man's work ethic (Sosis, 2000). Similarly, Smith and Bliege Bird (2000) report that among the Meriam, a Melanesian society located on an island off the coast of Australia, two to five years after a death, the family of the deceased puts on an elaborate feast to coincide with the erection of an expensive and showy permanent tombstone. Gifts are given to all guests, along with prodigious amounts of food. Ideally, one of the main courses is turtle meat, which is obtained through a dangerous, time consuming turtle hunt. Successful turtle hunting requires careful coordination of effort and great physical agility, strength, and diving abilities because the turtle hunters have to jump from a boat onto moving turtles in open water. The ability to supply many turtles for the funeral feast serves as an honest signal of the physical quality of the males in the family. Everyone in the village is invited to the feast, and no reciprocation of any kind is expected. Finally, among many Melanesian societies, yams are the focus of men's gardening effort (e.g. Beckett 1988, Scaglion 1999). While men may sometimes compete to grow greater quantities of yams, they often concentrate on growing a few yams that are as large as possible. At lengths of up to 3m, such yams are generally woody and inedible, suitable only as propagules for more yams and for display. Growing yams requires immense skill, takes up a lot of time and resources and seem to serve not only for food for the village, but for display – for feasts, gift giving or for trade, i.e. to gain prestige. Men who are successful become high status, which is expressed through increased access to resources and social recognition.

Other Evidence. Other examples include charitable giving, which serves as a signal (of wealth) even if the contribution is wasted (Glazer & Konrad, 1996, Sozou

& Seymour, 2005). For example, during the aftermath of the 2005 tsunami in the Indian Ocean, the Australian branch of the charity Medecins Sans Frontieres were overwhelmed with pledges of financial help – to the extent that they publicly announced that they had reached their $1 million target and any extra money could not be used (Williams, 2005). They asked people to direct their charity elsewhere, but nevertheless, people still continued to donate.

In experimental research, Caporael, Dawes, Orbell & van de Kragt (1989) reported that more people than expected contributed to a common pool to help their group earn a bonus. The finding was even more striking when in trials where certain individuals were designated as 'contributors' in order to ensure a sufficient proportion of the group donated their money to gain the bonus, it was often found that individuals designated 'non-contributors' donated their money to the pool. This may be due to reputation effects

Critical Assessment. There is evidence from a wide range of sources that people might be willing to engage in wasteful altruism due to reputation effects. Although there is a clear lack of experimental research in this area and the evidence is somewhat limited, the anthropological examples add weight to the support for the prediction. I think it is reasonable to infer that reputation concerns may be at the heart of these behaviours, however as these studies have not been directly concerned with testing this, this inference requires further validation before one could confidently interpret these findings as evidence for engagement in wasteful altruism.

Conclusion. Performing costly acts in order to gain a good reputation, rather than building up a network of reciprocal obligations, may be behind the wasteful altruism. In a reputation environment when contributions are made in public, we may expect people to compete with each other to be altruistic, even in situations where their altruism cannot make a difference (except of course, to their social status). This hypothesis has yet to be tested empirically – i.e. will people contribute to goods that have already been provided?

6. High status people should be more altruistic than low status people

The competitive altruism hypothesis suggests that altruism and social status are closely interrelated. According to competitive altruism, status hierarchies are based, in part, on the relative contributions that individuals make towards public goods. Altruism involves long-range thinking, whereby individuals incur initial

costs in order to enhance their status and reputation. The decision process might be entirely automatic as individuals may not be aware of the reasons for behaving altruistically or selfishly (cf. Bargh & Chartrand, 1999). The implicit connection between altruism and status gives rise to this prediction that variations in social status predict variations in altruistic displays. High-status cues might lead individuals to focus more on their reputation and the long-term benefits of altruism, whereas low-status cues might lead to a narrow focus on their immediate benefits (Keltner, Gruenfeld, & Anderson, 2003). In addition, in a competitive environment once high status has been gained, people should aim to protect or increase their status position within the group (and hence their access to scarce resources), strategies such as increased altruism may be a way to do this. Giving in a public good reveals someone's attitude towards their money and giving highly suggests they believe they have the capacity to earn more (or that they already have more in store). As a consequence, individuals who hold high-status positions (i.e., leaders) will increase their altruistic displays. Drawing on recent empirical evidence based on Veblen's (1973) conspicuous consumption theory, Hopkins & Kornienko (2004) found that spending on highly visible items (including charity giving) was higher among those of a higher social status. These results support a 'signalling by consuming' model.

In his historical review of status in Victorian Manchester, Shapely (1998) suggests that charity has been a vital means of acquiring or reinforcing symbolic capital and social position. For many this was not necessarily a source of motivation, yet through charitable involvement they nevertheless became regarded as "Manchester men," local leaders who had displayed moral worth and value to the community.

Van Vugt (2006) suggests that leaders should be more generous than followers. Although there seem to be few direct or conclusive tests of this idea, there does appear to be some indirect support (reviewed below). He suggests that one reason why socio-emotional qualities, such as empathy, predict leadership emergence is perhaps because they provide followers with information about the prosocial inclination of leaders (cf. Batson, 1998). Trustworthiness of a leader is another such trait. A study measuring satisfaction with cadet leaders found a strong correlation between subordinates' satisfaction and a measure of the leader's trustworthiness (Sgro, Worchel, Pence, & Orban, 1980). Another study found that

the most important distinction between good and bad supervisors was the amount of help they gave to their workers, for example, in promotion decisions, sharing time and sacrificing personal interests (Konovsky, 1986).

Anthropological Evidence. Anthropological research also supports the association between generosity and leadership. Reviewing the literature on hunter-gatherer societies, Boehm (1999) concludes that leaders get respect by being generous. Leaders who are stingy are sometimes simply disobeyed, replaced, or even killed by the group (Chagnon, 1997). Furthermore, amongst Arabian Babbler birds, altruistic allofeeding and nest guarding is used by those with high status as a status reinforcement mechanism (Zahavi & Zahavi, 1997).

Experimental Evidence. Experimental research using public good dilemmas provides further support for a link between leadership and generosity. First, Rapoport (1988) found that subjects given a higher level of resources in a social dilemma game – the "rich" – contributed more to the common pool. When individuals had been randomly designated as group leaders they are more likely to intervene in an emergency, such as the sudden illness of a group member, (even though responding to the emergency meant violating the experimental instructions), than when they were ordinary members (Baumeister, Chesner, Senders, & Tice, 1988) and self- sacrifice by a leader has been found to engender more cooperation from their followers (De Cremer & Van Knippenberg, 2002). Finally, Chen, Lee-Chai, & Bargh, (2001) report that students who are primed with words associated with power and leadership (e.g. 'influence' or 'control') in one task, become more socially responsible and altruistic towards fellow students in subsequent tasks.

Critical Assessment. The evidence that high status should influence appears methodologically strong and extensive. A broad variety of experimental procedures alongside anthropological support have been involved in providing this support. Again the main critique is that some of the studies have not been concerned with altruism and status, but rather were more directly interested in leader-follower relationships. However, it is reasonable to infer from the evidence that those with high status (as leaders must surely be) are often more altruistic, or at least generous and cooperative than followers.

It should be noted that there is also some evidence to suggest an alternative hypothesis to that proposed by competitive altruism - that status gives a person an opportunity to free-ride with relative impunity. As De Cremer & van Dijk (2005)

report, leaders can be less altruistic than followers, which they explain in terms of feelings of entitlement that the leaders possess. Similarly, Hoffman and Spitzer (1985) show that individuals who earn a high status role in a simple bargaining game feel entitled to that role and tend to make less generous offers.

Conclusion. Although not directly tested, there does seem to be evidence to suggest that there should be a relationship between status and altruism, in that we could expect those who hold a high status position would be more altruistic. In light of the lack of direct experimental focus and conflicting evidence, this hypothesis will be tested directed in this thesis.

7. People should refuse help when it is offered or when they need it

In competitive altruism, altruism is linked to social status. People who act altruistically gain the trust and respect of others, which tends to lead to status. Those who are more altruistic than others, reap greater status rewards. As previously discussed, altruism may be serving as signal of a person's valuable qualities and people would compete to be the most altruistic. What is the cost of this to those who are the recipients of altruism? Well, just as altruism raises status for those who are doing the giving, accepting help lowers it. It is possible that people would therefore be expected to reject help (especially in a public setting) to avoid this damage to their status.

Anthropological Evidence. Experiments using an ultimatum game show that in some cultures people reject aid when it is offered. In this game, played under conditions of anonymity, two players are shown a sum of money, say £10. One of the players, called the ''proposer,'' is instructed to offer any number of pounds, from £1 to £10, to the second player, who is called the ''responder.'' The proposer can make only one offer. The responder, again under conditions of anonymity, can either accept or reject this offer. If the responder accepts the offer, the money is shared accordingly. If the responder rejects the offer, both players receive nothing. Among the Au and Gnau, many proposers offered more than half the money, and many of these ''hyperfair'' offers were rejected. This reflects the Melanesian culture of status-seeking through gift giving. Making a large gift is a bid for social dominance in everyday life in these societies, and rejecting the gift is a rejection of being subordinate (Gintis, Bowles, Boyd & Fehr, 2003). This has also been shown

in Capuchin monkeys (Brosnan & De Waal, 2003) – where these social primates preferred receiving nothing to receiving a reward inequitably.

Experimental Evidence. Extensive laboratory research has been conducted on reactions to help (Fisher, Nadler, & Whitcher-Alagna, 1982), and negative reactions to help are not uncommon (Fisher, Nadler, & DePaulo, 1983). The majority of these studies have used undergraduate psychology student participants and have involved achievement-related tasks such as solving a puzzle. Negative reactions are usually measured by poorer performance, lower task motivation, lower evaluation of the help, or lower liking ratings of the helper. The factors that have been found to lead to negative responses to aid include the inability to reciprocate and thus indebtedness to the helper (Greenberg, 1980), restriction of freedom (Brehm & Cole, 1966; Greenberg, 1980), greater internal locus of control (Nadler & Fisher, 1986), and higher self-esteem (Nadler & Fisher, 1986). The primary theoretical framework to explain results in this area is the threat-to-self esteem model (Fisher et al., 1982), which states that help is perceived as threatening because help implies that the aid recipient is inferior or is incapable of completing the task alone.

Help-seeking is often regarded with negative connotations. Karabenick and Knapp (1991) found that many students were able to report times when they could have used assistance with courses, but did not seek the help that probably would have enabled them to surmount their difficulties. Some students, particularly those who have a strong desire to be judged as successful and able, may construe help-seeking as admitting to lack of ability and thus consider it to be threatening to their status and self-worth and thus to be avoided (Ryan & Hicks, 1997).

Wilkinson (1996) has argued that income inequality affects health through perceptions of place in the social hierarchy based on relative position according to income. Perceptions of social rank—indexed by relative income—have negative biological consequences for individuals and negative social consequences for how individuals interact. Accepting financial help may therefore reinforce one's perception that they hold a lower place in the status hierarchy. Similarly, reactions to over-compensation (in terms of salary or bonus) in the workplace are negative (Bewley 1999).

Critical Assessment. The evidence reviewed above all suggest that there are negative consequences for the individual of accepting help so the prediction people

should reject help when it is offered may be supported. It should be noted that the support is derived mainly from experiments within psychology using students so may lack some validity for example across cultures or age-groups for example, as well as non-students. The main critique of these in deriving support for competitive altruism is that they have not been concerned directly with the reputation or status effects of receiving help. The main focus has been on self esteem and well-being (with the exception of Karabenick & Knapp, 1991). To have full confidence in these findings further experiments could be conducted with a public / private dimension – to examine whether perhaps people would be more willing to accept help anonymously than in public (which would be in line with competitive altruism).

Conclusion. From various literatures, there seems to be at least some indirect support for the prediction that people should reject help when it is offered. This reaction may vary between cultures, but seems to be linked to self esteem and the effects of accepting help on perceptions of one's place in a social hierarchy.

8. People should be highly censorious; they should be eager to point out the selfishness of others in order to shine by comparison

Again, due to the implicit connection between altruism and social reputations it is expected that one part of the competitive struggle to be the most generous may involve public comparisons between the self and others, in order to expose their altruistic inferiority (perceived or real) and thus further one's own reputation.

To my knowledge, this prediction has not been empirically tested, but a look around the modern media suggests support for this prediction. For example, following the recent Asian tsunami disaster, Western media outlets commented on the apparent "stinginess" of Arabs and Arab governments compared with the "generosity" of Western governments and individuals. An article published by the Observer on Sunday ("West's tsunami pledges $200m short") compared the donations made by private individuals of 12 countries to the victims of the Asian tsunami, in the first 15 days following that natural disaster. The Observer's article reported the donations in absolute terms, whereas in fact, a later (less publicised) comparison on donations placed in terms of percentage of donations relative to per capita income, (probably a better measure of real generosity) the Saudis are revealed to be highly generous indeed: 112 percent more generous than second place Swedes, 134 percent more than 3rd place Dutch (Observer, Jan 2005)

Gordon Brown, Britain's finance minister, argued the case for the UK offering debt moratorium for the countries worst affected by the tsunami - possibly for the political motive of making Britain look generous in comparison to other countries who weren't offering the same (The Economist, Jan 2005). In the same report, America's secretary of state Colin Powell, spelled out his political motivations for aid giving, "I think it does give the Muslim world...an opportunity to see American generosity, American values in action..."

Highly charitable organisations like Bell Atlantic in the US are decidedly derogatory about less charitable competitors and eager to expose their philanthropic inferiority. The president of the Bell Atlantic foundation has suggested that the non-profit community should run a major public relations campaign exposing how little corporations are giving as a percent of pretax income. And recently, Marc Benioff, the chief executive of Salesforce.com says CEOs like Bill Gates should be donating more than money. In his own company 1% of its employees' time to is allocated to non-profit endeavours. Employees get paid time off to pursue charitable pursuits, which often involve spreading the benefits of technology to poor areas (Forbes, June 2006).

This kind of pressure can make a difference. For years, Microsoft entrepreneur Bill Gates refused to give away his billions, and was roundly criticised for this. He eventually established the Bill and Melinda Gates foundation and now is the highest ranking charitable donator in the US (Slate, 2006).

A related prediction to the previous one, suggests that in the competition to gain a good reputation people might falsely judge their own generosity. There is some evidence to suggest that this is the case, Epley & Dunning (2000) found many people make an error in self-assessment of generosity - participants in their experiments consistently tended to overestimate their own generosity.

Critical Assessment. The evidence reviewed in this section was drawn mainly from observations of real-world events and behaviours. This evidence suggests that people may derogate the efforts of others in order to succeed in the competition for an altruistic reputation. However, although informative the evidence is less robust than experimentation so one cannot draw a conclusion of support for the prediction. Nevertheless, it is possible to infer that this is a valid prediction from competitive altruism and one that would merit further investigation.

Conclusion. This novel idea has yet to be tested empirically but the anecdotal evidence presented seems to suggest that this is a potentially interesting area for future research.

III Aim of Thesis and Research Overview

Several key points can be taken from the above reviews. People do have other-regarding, altruistic sentiments; they contribute to public goods from which they benefit little; they do sacrifice for their children and kin, but also to others to whom they are not related. There are individual differences in altruism – in a given situation, some people will be more altruistic than others. Existing explanations focus on proximate reasons for altruism or kin and reciprocity explanations. However, there exists a need for further explanation for altruism towards public goods that is not towards kin or directly reciprocated. This literature review serves as the foundation for the competitive altruism argument – an evolutionary trajectory travelled by altruism and cooperation over the last two million years

The aim of this thesis is to provide a first experimental demonstration of competitive altruism by testing some predictions derived from the previous discussion (see Table 2.1) in a controlled laboratory setting (it is impossible for this thesis to address all the predictions I have presented). In light of the above hypotheses, I believe that an ideal arena to conduct some initial tests of the competitive altruism theory is the public good dilemma task (Komorita & Parks, 1994). These situations present a dilemma to the individual and are formally defined by two properties: (i) Each individual receives a higher personal outcome for a non-cooperative decision no matter what the other people in the group do; (ii) The entire group is better off if all or most individuals cooperate rather than act selfishly (Dawes, 1980).

Why might contributing in a public good dilemma enhance someone's reputation? First, a contribution to a public good is personally costly to the actor. Second, contributing to a public good has the potential to attract a large audience of interested observers who all profit if the good is provided. Moreover, they can easily compare among several contributors, which helps in making inferences about the underlying quality of the contributors and also provides a competitive environment for those involved (Henrich & Gil-White, 2001). Finally, although altruistic

contributions to public goods are uneconomical, the costs could be recouped in the long term if altruists were likely to gain non-material benefits such as status and prestige, which might yield long-term profits, for example, by being chosen as interaction partners in future reciprocal exchanges (Roberts, 1998).

Table 2.1

Summary of Predictions

Main Predictions	Chapter	Method
1. People will engage in costly altruism towards a public good. (There will be individual differences)	3, 4, 6	Public Goods Game (PGG) / Resource Dilemma
2. When behaviour is observable to others, individuals will compete to be the most altruistic	3 & 4	PGG / Resource Dilemma
3. There must be long term benefits to altruists:	3	PGG and Dictator Game
a) Altruists will gain higher status, but only in public conditions and not in private		
b) Altruists will be chosen as group leaders	3	
c) Altruists will be chosen as future interaction partners	3	
d) Altruists will benefit in subsequent games	3	
4. Altruism must be a reliable indicator of some quality.		PGG, IQ & Big 5 questionnaire

Continued on next page

Main Predictions	Chapter	Method
5a). In a reputation environment, people contribute when their donation is wasted -- for example, the good has already been provided	4	PGG with provision point
b) These wasted contributions increase the status and prestige of donors.	4	
6. High status individuals will be more altruistic than low status individuals.	5	PGG
7. Altruism in real world – importance of public goods.	6	Questionnaire and historical data

Note. In each empirical chapter predictions start from number 1 each time as each chapter is a self-contained piece of research.

A Note on the Methodology

The thesis comprises nine studies. Each reported study (except in Chapter 6 which uses archive data and a questionnaire) employs a social dilemma task that by definition involves a potential for an individual to display altruistic behaviour. Specifically we employ one of two types of social dilemma; a *public goods* dilemma and a *resource* dilemma. In both, the class of the problem contains a conflict between a person's own payoff and the pay off for the group. In these situations people are better off materially if they behave in their own interest, but also have the opportunity to show altruism by behaving in the interest of the group (for similar examples, see Van Vugt et al., 2000).[1]

The following section provides a description of the dilemma tasks that were used in the experimental research described in this thesis.

[1] The public good dilemma is considered to be a classic example of altruism in the economics and psychological literatures (Fehr & Fischbacher, 2003; Penner et al., 2005; Van Vugt & Van Lange, in press). It resembles a situation in which it is costly for people to contribute money, because the public good is shared equally among all group members, yet the costs of contributing are borne by the individual. Thus, individual contributors are altruistically helping the group at a cost to themselves.

Public Goods Game

The public goods game is a well known experimental game that pits selfish and altruistic behaviours against each other, specifically it examines how willing individuals are to contribute to a fund that will benefit all members of the group, instead of acting in a selfish manner.

In this game, group members start with an initial endowment (this is determined by the experimenter) of which they can allocate any amount to the public good (the group fund), and any amount to themselves (the private fund). The total amount of money that is in the group fund is then multiplied by 2 (again this is determined by the experimenter) and then evenly distributed between all group members, regardless of the amount they had contributed. The amount each individual earns is their share of the group fund, plus the amount they kept in their private fund. See Figure 2.1

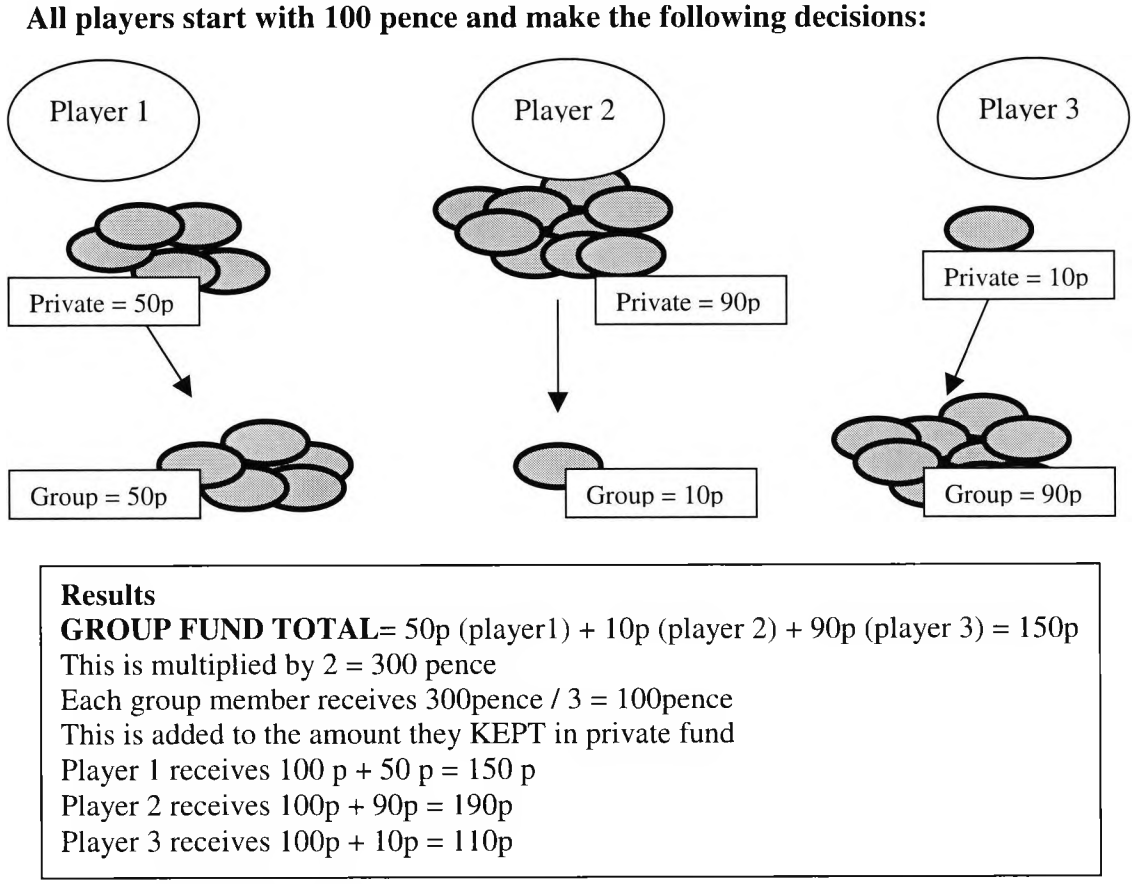

Figure 2.1. Public Goods Game and pay off Structure

If all group members contribute to the public good then they will all receive a return that is *more* than their initial endowment. However, if not all members

contribute then those that have done may receive a return that is *less* than their initial endowment whereas those who were selfish and did not contribute will profit from the public good on top of their private fund. As there is no guarantee that all group members will contribute, the rational choice for players is to keep their initial endowment and contribute little, if anything to the public good.

The game presents the opportunity for people to show altruism by forgoing selfish benefits by acting in the public interest.

Resource Dilemma

Made famous by Hardin's (1968) "Tragedy of the Commons", this game is similar to the public goods game. In a resource dilemma, there is a shared resource that all members of the group have access to. They are instructed to remove any amount from the shared resource that they wish to. If the total that all group members remove from the resource is *less than* or *equal to* the value of the resource, then each group member can keep what they have taken. However, if the total removed is *more than* the value of the resource that all individuals receive nothing. In this game, individuals can behave altruistically by taking a very small amount of a shared resource for themselves and leaving a large amount in the common resource to benefit others; however, people are always tempted to take more for themselves (Van Vugt, 2001).

Dictator Game

This is a fairly simple game whereby one player (P1) is given an endowment and can then give any amount of this to another player (P2). This game can be considered a measure of how willing an individual is to be altruistic or generous towards their partner. From a rational viewpoint, when this is a one shot game, P1 should be expected to give nothing.

Overview of Empirical Chapters

Chapter 3. Three experimental studies examined the relationship between altruistic behaviour and the emergence of status hierarchies within groups. In each study, group members were confronted with a social dilemma in which they could either benefit themselves or their group. Study 1 revealed that in a reputation environment when contributions were public, people were more altruistic. In both

Studies 1 and 2 the most altruistic members gained the highest status in their group, and were most frequently preferred as cooperative interaction partners. These results support the premise at the heart of competitive altruism - that individuals may behave altruistically for reputation reasons because selective benefits (associated with status) accrue to the generous.

Chapter 4. Two studies examine the occurrence of 'wasteful altruism' in a public goods dilemma. We report that under certain conditions, people would contribute to a public good when they don't need to; because the good has *already* been provided and thus their contribution gains no-one any monetary benefit (Study 4) or because the good *cannot* be provided (Study 5) – any financial contribution will definitely be lost. In both scenarios people engaged in 'wasteful' altruism only in a reputation condition (and not in a no reputation condition) when there was an opportunity to gain a reputation for their altruistic behaviour (i.e. when their behaviour was in the public eye. As in the previous chapter, Study 5 confirms that those who were the most altruistic gained the highest status in their group. Again these results support competitive altruism, that people compete to be the most altruistic to enhance their reputation and gain social benefits.

Chapter 5. Two studies (Studies 6 & 7) examine whether altruistic behaviour is used to reinforce and maintain status by monitoring altruistic behaviour of high versus low status group members. Both studies showed that high status members behaved more altruistically than low status members and Study 7 extends this result by examining altruism after a status change. Emotional reactions to status change were also reported in Study 7 and possible evolutionary reasons for these are discussed. These results provide further support the idea that by behaving altruistically group members "compete" for social status within their group.

Chapter 6. Two studies are presented that examine the status and reputation of those who engage in altruistic behaviour, for example, through contributions to public goods. Study 8 reports that high status occupations in British society are those that are perceived to be involved with contributing altruistically towards the community. Study 9 uses historical data and provides support for the hypothesis that

altruistic contributions to three specific public goods can earn people their reputations. Results are discussed in terms of competitive altruism theory.

Chapter 7. The main findings of the presented studies are summarised and some tentative conclusions are drawn with respect to competitive altruism. Limitations and boundaries of the theory are discussed alongside a possible evolutionary trajectory for the theory.

CHAPTER 3

NICE GUYS FINISH FIRST: *STUDIES 1, 2 & 3*[1]

Abstract

Three experimental studies examined the relationship between altruistic behaviour and the emergence of status hierarchies within groups. In each study, group members were confronted with a social dilemma in which they could either benefit themselves or their group. Study 1 revealed that in a reputation environment when contributions were public, people were more altruistic. In both Studies 1 and 2 the most altruistic members gained the highest status in their group, and were most frequently preferred as cooperative interaction partners. These results support the premise at the heart of competitive altruism - that individuals may behave altruistically for reputation reasons because selective benefits (associated with status) accrue to the generous.

[1] These studies are published as Hardy, C. L. & Van Vugt, M. (2006). Nice Guys Finish First: The Competitive Altruism Hypothesis, *Personality and Social Psychology Bulletin, 32*, 1402-1413.

Chapter Three

Nice Guys Finish First:
The Competitive Altruism Hypothesis

Humans are social animals. This phrase is often stated in the social and evolutionary psychology literatures (Aronson, 1990; Buss, 2004; Van Vugt & Van Lange, in press), but what does it actually mean? The answer centres on issues of selfishness and altruism. Whereas most other mammals help each other only within small kinship groups, humans have the unique ability to form and cooperate within large social groups, which include many genetic strangers (McAndrew, 2002). For example, humans invest time and energy in helping other members in their neighbourhood and make frequent donations to charity (Van Vugt, Snyder, Tyler, & Biel, 2000). They come to each other's rescue in crises and disasters (Van Vugt & Samuelson, 1999). They respond to appeals to sacrifice for their country during a war (Stern, 1995), and they put their lives at risk by helping complete strangers in an emergency (Becker & Eagly, 2004).

Altruism, the intention to benefit others at a cost to oneself (Batson, 1998; Van Vugt & Van Lange, in press), is one of the major puzzles in the behavioural sciences today. Across many decades of research, social psychologists studying altruism and cooperation have identified numerous important factors that affect helping behaviour, such as empathy (Batson, 1981), closeness (Neyer & Lang, 2003), mood (Isen, 1970), values (Omoto & Snyder, 1995; Van Lange, Otten, De Bruin & Joireman, 1997), rewards for helping and costs for not helping (Penner, Dovidio, Schroeder, & Piliavin, 2005; Van Vugt, 1998). Yet, social psychological models of altruism often do not address where these basic motivations come from or how they came to be so important in human evolutionary history (cf. McAndrew, 2002). For evolutionary theorists, altruism has always been something of an enigma. How could any organism engage in actions that seem to benefit others, but not themselves?

Over the past decades, two main evolutionary models of altruism have emerged, kin selection theory (Hamilton, 1964) and reciprocal altruism theory (Trivers, 1971). These models are well-founded in mathematical theory and they have received overwhelming empirical support (Axelrod, 1984; Burnstein, Crandall, & Kitayama, 1997; Neyer & Lang, 2003; Van Lange & Semin-Goosens, 1998). Yet questions remain about the extent to which they can fully account for the diversity

and ubiquity of altruistic patterns in human society (Fehr & Fischbacher, 2003; Van Vugt, Roberts, & Hardy, in press). Perhaps as a consequence, social psychologists have found it difficult to relate their theories and findings to the deeper-rooted evolutionary theories of kinship and reciprocity. It appears that something is missing, but what?

In this article, we present a novel theory of altruism, competitive altruism, which we believe can account for a range of altruistic behaviours among humans in particular that theories of kinship and reciprocity cannot easily explain. Competitive altruism is the process through which individuals attempt to outcompete each other in terms of generosity. It emerges because altruism enhances the status and reputation of the giver. Status, in turn, yields benefits that would be otherwise unattainable. We present three experiments in which we test various aspects of the competitive altruism hypothesis in small groups involved in a public good dilemma, a task that pits altruistic and selfish motives against each other (Dawes, 1980; Komorita & Parks, 1994; Van Vugt & De Cremer, 1999).[2]

Evolutionary Theories of Altruism: The Missing Link

Since the inception of evolutionary theory (Darwin, 1859), theorists have struggled to find a satisfactory solution to the altruism problem (Van Vugt & Van Lange, in press). It was recognized that organisms would sometimes engage in self-sacrificial behaviours to benefit others but it was not clear how altruism could have been selected for in evolution. After all, natural selection favours traits and behaviours that benefit the reproductive success of their bearers, allowing these traits and behaviours to spread through a population at the expense of less successful designs (Van Vugt, Roberts, & Hardy, in press). The first successful attempt to solve the altruism puzzle was Hamilton's (1964) inclusive fitness theory (kin selection theory). According to this theory, natural selection would favor behaviours that benefit either the organisms themselves or those who share their genes, i.e. closely related kin. Thus, caring for a grandchild could be seen as adaptive given the genetic

[2] The public good dilemma is considered to be a classic example of altruism in the economics and psychological literatures (Fehr & Fischbacher, 2003; Penner et al., 2005; Van Vugt & Van Lange, in press). It resembles a situation in which it is costly for people to contribute money, because the public good is shared equally among all group members, yet the costs of contributing are borne by the individual. Thus, individual contributors are altruistically helping the group at a cost to themselves.

relatedness between grandmother and grandchild. This theory has received overwhelming empirical support: People behave more altruistically towards those to whom they are more closely related (see for example, Burnstein et al., 1997; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Neyer & Lang, 2003). Yet, it is unclear how kin selection theory could account for altruism towards non-related individuals -- a common feature of human societies (Van Vugt et al., 2000) -- unless it is assumed that individuals cannot perfectly distinguish between kin and non-kin (the big mistake hypothesis; Van Vugt & Van Lange, 2006).

Reciprocal altruism theory (Trivers, 1971) proposed another solution to the altruism problem. A design for altruism towards genetic strangers could evolve if the altruistic behaviour is reciprocated by the receiving party, either directly or at some point in the future. Two neighbours, for example, might decide to engage in reciprocal exchange by looking after each other's pets when the other is on holiday. Although there is some empirical support for this theory, among both humans (Axelrod, 1984) and other social species like vampire bats (Wilkinson, 1984), the stability of reciprocal altruism is problematic, because altruists may be exploited by individuals who fail to reciprocate – for example, one neighbour might move home before fulfilling his or her obligation. It is therefore hard to see how this theory could account for altruism in human society where one-off encounters between strangers are relatively common (Batson, 1998; Snyder, Omoto, & Lindsay, 2004).

So, the mystery about the origins of altruism remains. Can altruism ever evolve in interactions between genetic strangers if these actions are not reciprocated? We believe it can if we are willing to consider the idea that altruistic actions are in fact a signal about the altruist's personal qualities. Altruism, if publicly displayed, increases the reputation and status of the altruists, which makes them more attractive interaction partners, providing them benefits that are not available to non-altruists. Reputation effects could be the "selective incentive" (Olson 1965) that motivates certain individuals to do good for society. But why should groups reward altruists with status?

The Competitive Altruism Hypothesis

One explanation comes from costly signalling theory (Zahavi & Zahavi, 1997). Based on observations from the animal world, Zahavi noted that organisms often engage in behaviours that are costly to themselves in order to signal honest information about themselves. The classic example is the peacock's tail. The tail of

a male peacock handicaps the owner, because it is extremely difficult to grow and limits his movement so that he becomes an easy catch for predators. This handicap can be selected for, however, because it advertises the peacock's quality as a mate or ally. Handicaps like these benefit signallers by increasing the likelihood that they may be chosen as coalition partners or potential mates.

This theory suggests that altruism might qualify as a handicap. By spending excessive amounts of energy, time, and money on activities that are essentially unselfish, altruists advertise some desirable underlying quality that is costly to obtain and therefore hard to fake, such as resource control, genetic endowment, health or vigour (Smith & Bliege Bird, 2000). The altruist benefits by increasing their social status and thus the likelihood that he or she will be chosen as a mate or ally. Through this, the altruists are able to recoup the costs of their display in the long run.[3]

An alternative explanation is derived from indirect reciprocity theory (Alexander, 1987). In this model support is given to individuals who have helped others, so altruists are sometimes *rewarded* by the community as a whole. Groups may compensate altruists by giving them status and prestige because by doing so, they can continue to benefit from the presence of these individuals in their community. By contributing to a public good, an individual may thus build up a reputation for being generous which might make them more attractive as future exchange partners.

Whatever the precise mechanism, we suggest that when reputations are at stake this is likely to induce competition. On the one hand, people will be competing with each other in terms of generosity to advertise themselves as future exchange partners, and on the other hand, observers are competing for access to the most altruistic partners -- hence the term "competitive altruism" (Van Vugt, Roberts, & Hardy, 2007).

Competitive altruism is presumably widespread in human societies. The anthropological literature documents various examples of excessive public displays

[3] We are not arguing that people are always consciously aware of the possible long-term benefits of altruism. In many situations the potential benefits are uncertain and people take a real risk by being altruistic. We are also not arguing that altruism is solely guided by reputation concerns. There may be many proximal motives for altruism (such as empathy, guilt, and a prosocial orientation) and we are not discarding these (Omoto & Snyder, 1995). All we are saying is that an altruistic trait could only evolve if it contributes ultimately to the (reproductive) success of an individual. Competitive altruism suggests one potential benefit to helpers, which is based on reputation rather than on kinship or reciprocal altruism.

of altruism and generosity. For example, in a Melanesian tribe, family members organize a party after a relative's death, which includes giving food and gifts to all guests. Turtle meat is most valued, presumably because turtle hunting is a dangerous and time consuming activity. Therefore, a feast of turtle meat is an honest signal for the quality of the males in a family (Smith & Bliege Bird, 2000). Similarly, chiefs of local Indian tribes in the North-West of America once engaged in fierce battles of generosity by organizing "pot latches," whereby they would distribute food and luxury foods to members of neighbouring villages in an attempt to impress them with their wealth (Wright, 2000). The social psychology literature shows that an increase in the visibility and decrease in the anonymity of individuals enhances their cooperation in social dilemmas (Axelrod, 1984; Fox & Guyer, 1978; Jerdee & Rosen, 1974). Finally, mathematical models show that both altruism as a costly signal and altruism in indirect reciprocity might be evolutionary stable strategies (Gintis, Alden Smith & Bowles, 2000; Nowak & Sigmund, 1998).

Our aim in this article is to provide a first experimental demonstration of the competitive altruism hypothesis in a controlled laboratory setting in which individuals can behave altruistically or selfishly in the context of a public good dilemma task.

Generosity in Public Good Dilemmas

There are presumably several conditions that must be met in order for competitive altruism to emerge (McAndrew, 2002; Smith & Bliege Bird, 2000; Zahavi & Zahavi, 1997). First, the behaviour must be costly for the actor to display. Second, the behaviour must be easily observable to others. Third, the signal must be a reliable indicator of some underlying trait or characteristic of the signaller, for example, resource potential, wealth, health or intelligence. Fourth, the behaviour must in the long run benefit the actor who displays it. In light of these conditions, we believe that an ideal arena to conduct some initial tests of the competitive altruism theory is the public good dilemma task (Komorita & Parks, 1994).

Why might contributing in a public good dilemma enhance someone's reputation? First, a contribution to a public good is personally costly to the actor. Second, contributing to a public good has the potential to attract a large audience of interested observers who all profit if the good is provided. Moreover, they can easily compare among several contributors, which helps in making inferences about the underlying quality of the contributors and also provides a competitive environment

for those involved (Henrich & Gil-White, 2001). Finally, although altruistic contributions to public goods are uneconomical, the costs could be recouped in the long term if altruists were likely to gain non-material benefits such as status and prestige, which might yield long-term profits, for example, by being chosen as interaction partners in future reciprocal exchanges (Roberts, 1998).

Research Predictions

The competitive altruism theory makes a number of unique predictions about the emergence of altruism, which we test here. The first prediction is that high contributors (i.e., altruists) should do significantly worse in terms of their immediate outcomes in public good dilemmas than low contributors (Prediction 1).

Second, for competitive altruism to occur the behaviour must be visible to others so that they can evaluate and respond to it. We therefore predict that contributions increase once people realise that their contributions are displayed publicly (Prediction 2).

Third, although altruism is costly in the short run, there should be compensating benefits in the long run for those who behave altruistically. In other words, nice guys should finish first. One way to recoup the initial costs of altruism is through a gain in social status. Thus, our next prediction is that high contributors will be seen as higher in status (Prediction 3a). The altruism-status relationship should, of course, only hold if contributions are publicly displayed rather than made anonymously (Prediction 3b). A discriminant prediction is also made: These status effects will not be driven by altruists simply being liked more, perhaps due to a "halo" effect (Thorndike, 1920) whereby altruists are generally viewed more positively (Prediction 3c)

Fourth, high contributors are expected to benefit in the long run from their altruistic displays (although they are not necessarily aware of these benefits when they behave altruistically). Hence, once the task has finished and another one starts, we expect that they are more likely to be chosen as group leaders (Prediction 4) and interaction partners by other group members (Prediction 5). They should also gain more in a subsequent game (Prediction 6).

Finally, the competitive altruism hypothesis suggests that status differences are based in part on the perceived costs of altruism. Observers should be sensitive to the size of the costs that people incur in contributing to the group fund. Our final study manipulates the cost of altruism by giving people either a high monetary

endowment (low cost altruism) or low endowment (high cost altruism). Altruists should be awarded with more status the greater the costs of their contributions to the group (Prediction 7).

The present article contains three studies to test several aspects of the competitive altruism hypothesis.

Study 1: Competitive Altruism in a Public Good Dilemma

Study 1 comprised an experimental task with the properties of a continuous public good dilemma in which each member of a group of three receives a monetary endowment and decides how much to contribute to the group versus keep for themselves. Any money contributed to the group earns a bonus, which is shared equally between the group members, and is added to the money members kept for themselves (De Cremer & Van Vugt, 1999). We tested our first set of hypotheses by including a manipulation of the reputation environment and by monitoring contributions in a further round of the task. In the reputation condition, participants received feedback regarding the contributions of the other members, whereas in the no reputation condition there was no feedback.

Method

Participants and Design

Sixty six students from a high school in the South of England (32 females and 34 males, mean age 16.8 years) volunteered to participate. Each participant was randomly allocated to one of two experimental conditions, reputation or no reputation. There were 11 groups of 3 participants in each condition.

Procedure

Upon arrival in the room, participants were issued with an identification number (based simply on the order that they arrived in the room) and seated in adjacent seats. They were randomly assigned to groups of three using a random number generator to ensure that friends were not in the same group.

Introduction to the public good dilemma. Once everyone was seated the task was introduced as a group investment task to be completed in groups of three in which people could earn money for themselves and for their group. To avoid endgame effects students were not told how many rounds of the task they would complete. Participants were also informed that it was not financially possible to pay every person what they earned in the task, but that the experimenter would pay the

ten highest earners the amount they earned. Winners were informed by email and sent their money by check.

At the start of the session participants received an endowment of 100 pence (approximately 175 US$ cents). They were free to contribute any amount from 0 - 100 pence to the private fund (p), which is kept by the individual, and any amount to the group fund (100-p). The total amount contributed to the group fund would be multiplied by 2 and divided equally among the 3 group members. Thus the total sum an individual (i) would earn would be $p_i + ((100-p_i 1) + (100-p_i 2) + (100-p_i 3))2 / 3$ -- where $p_i 2$ and $p_i 3$ are the other group members. This payoff structure fulfils the criteria for a continuous public good dilemma in that (1) it is financially better for the individual to contribute to the private fund, but (2) if every member did this, they would each be worse off than if they all contribute to the group fund (Dawes, 1980).

Participants were asked to complete a two-part question relating to their contribution choice; "You have 100 pence, (1) how much do you wish to contribute to your personal (private) fund? (2) How much to do you wish to contribute to the group fund?" The participants were instructed to ensure the total sum added up to 100 pence, which was checked by one of the experimental assistants.

Manipulation of reputation condition. The reputation and no reputation conditions were created via the feedback sheets given to each group member after the first round of the task had been completed. Eleven of the groups received a feedback sheet that detailed the individual contribution decisions of all the group members (reputation condition). The other 11 groups received no feedback sheet (no reputation condition).

Dependent measures. At the end of the first task, after the feedback sheets had been given out, each member received a two-part questionnaire designed to measure any status differences that may have emerged within the group as a result of the task (see Appendix A). The first part asked several questions (on 7-point scales ranging from low (1) to high (7)) regarding the perceived status and influence of each member. For each member (themselves included) they were asked to rate: "Your perception of the ability of each member to earn money for the group"; "Your perception of the effectiveness of each member at earning money for the group"; "Your preference for each group member to act as a representative or spokesperson for the group; "Your preference for each group member to coordinate the group and make a final decision on the group's contribution"; "How legitimate do you feel

each group member would be as a representative or spokesperson for your group?"; "How willing would you be to cooperate with each group member if they were in charge of deciding the amount of the group's contributions in subsequent trials?"(There was no self measure for this question). A final question measured the liking for the group members by asking, "How much do you like each member of the group?"

Secondly, as a further status measure, we asked participants to indicate the group member (themselves included) that they would choose as group leader (this person would organize the group contributions in a future task). The questionnaire also asked for the participants' sex and email addresses (to inform the highest earners of their earnings).

After the questionnaires were completed at the end of the first round of the public good task, a second round of the task was completed in which we could measure changes in contribution to the group fund after group members received first round feedback.

Manipulation check of reputation. At the end of the experiment, each participant was asked to indicate how visible they felt by rating eight adjectives on a 7-point scales ranging from not at all (1) to very much (7): e.g., "When I made my decisions I felt conspicuous, ...anonymous (reversed)" (Jorgenson & Papciak, 1981). See Appendix B.

Debriefing. At the end of the study, participants were informed about the nature of the study and given the opportunity to ask questions. They would be informed by email if they were one of the ten highest earners and told how to collect their money. The ten highest earners earned between 270 pence and 300 pence.

Results

Manipulation Check

The eight scales relating to the reputation / no reputation manipulation were turned into one scale ($\alpha = 0.86$). The mean score was subjected to a one-way ANOVA. The result was significant, $F(1, 65) = 156.55$, $p < .01$; participants in the reputation condition felt more visible ($M = 4.63$, $SD = .53$) than those in the no reputation condition ($M = 2.58$, $SD = .78$). Both scores significantly differed from the scale midpoint (reputation condition: $t(32) = 6.9$, no reputation condition: $t(32) = 10.44$, $p < .001$).

Altruism

Is altruism costly? A one-way ANOVA was conducted on the amount earned (amount in private fund plus the group bonus) by each group member. Consistent with Prediction 1, the results show that the altruists in each group (those who contributed most to the group fund) earned significantly less (M = 145.84, SD = 25.53) than the other members of their group (M = 166.46, SD = 24.46), $F(1, 64)$ = 10.12, $p < .01$.[4]

Effect of reputation on altruism. To test Prediction 2 (altruism increases in reputation condition), a repeated measures ANOVA was conducted on contribution to the group fund in each round as the within subject factor and condition (reputation vs. no reputation) as the between subjects factor. The means, displayed in Table 3.1, support this prediction. The factor round was significant $F(1, 64) = 6.04$, $p < .01$. There was also a significant interaction between round and reputation, $F(1, 64)$ = 7.90, $p < .01$. Pairwise comparisons were made for the simple effects within the interaction, using Sidak corrected 95% confidence intervals. In round 2 only, contributions were higher in the reputation condition (M = 68.15, SD = 28.85) than in the no reputation condition (M = 57.24, SD = 26.59), F(1, 64) = 4.34, $p<.05$, and contributions to the group fund increased only in the reputation condition, F(1, 64) = 13.79, $p < .01$. For those in the no reputation condition, contributions remained stable.

Status. A factor analysis was conducted on the six questions pertaining to status, which yielded evidence for one factor explaining 71% of the variance. We averaged the mean ratings across the questions to form one overall status score per participant (α =0.92).

[4] Previous research has shown that even in anonymous situations in the laboratory, participants feel that they are being "watched" and as a result act more altruistically (Hayley & Fessler, 2005). We included the reputation / no reputation manipulation (instead of testing the predictions against chance) as we were interested to see if there were reputation concerns at work even in the condition where people did not know what others had contributed. We did not find any evidence of this so the no-reputation condition was discarded in Study 2.

Table 3.1

Mean Contribution to the Group Fund in Reputation and No Reputation conditions (Study 1)

	Mean contribution to the group fund (pence)					
	Overall		By Sex			
Condition	Round 1	Round 2	Round 1 female	Round 2 female	Round 1 male	Round 2 male
Reputation	58.7_a	68.2_b	52.9_1	65.6_2	62.5_2	69.8_3
No Reputation	56.6_a	57.2_a	52.3_1	49.9_1	62.6_2	64.2_2

Means with a different subscript differ significantly from each other, $p < .05$

In line with Prediction 3a, the zero-order correlation between altruism and perceived status was significant, $r = .38$, $p < .01$. Those who behaved altruistically received a higher status rating. Also, as predicted, the correlation for the reputation condition ($r = .60$) was significantly higher than the correlation for the no reputation condition ($r = -.13$); $z = 3.18$, $p < .01$. This shows that the relationship between altruistic behaviour and status was only obtained in the reputation condition (Prediction 3b).

To rule out the explanation that altruists are simply liked more generally (Prediction 3c), there was no significant relationship between altruism and the liking score ($r = .01$, *ns).* Thus, altruists were not liked more than non-altruists. Finally, there was no significant correlation between liking and status, $r = .03$, *ns.*

To explore these status results further, the Social Relations Model (SRM: Kenny, 1998) was used to analyze the round-robin peer ratings on the status measures. According to the SRM, an individual's perception of another person can be partitioned into three components: a perceiver effect (how a person views others in general); a target effect (the average level of response that a person elicits from others); and a unique dyadic relationship effect. The present study focused only on the target effect of status, that is, do group members agree on who has more versus less status in their group, and is this agreement correlated with altruism? In the reputation condition only, target variance accounted for 42% of the total variance in peer status ratings indicating that group members did tend to agree on how much status each group member had. Altruism was positively and significantly associated with this target variance, $r = .87$, $p < .05$. In the no reputation condition there was no

significant target effect (target variance accounted for 0% of the total variance), indicating that group members did not agree on who had the most status in the group.

Pairwise comparisons revealed that in the no reputation condition there were no significant differences between the mean status scores for each member $F(2, 19) = .01$, *ns*. In the reputation condition, status scores decreased significantly with decreased contributions to the group fund, $F(2, 19) = 15.58$ $p < .01$ (see Figure 3.1).

Choice of group leader. A chi squared analysis revealed that there was significant association between choice of group leader and reputation condition $\chi^2(1, N = 66) = 14.10$, $p < .01$. In the reputation condition the highest contributor was elected as group leader 82% of the time. In the no reputation condition, there was no agreement on the choice of group leader (highest contributor elected, 36% of the time compared to 33% by chance). This is consistent with Prediction 4.[5]

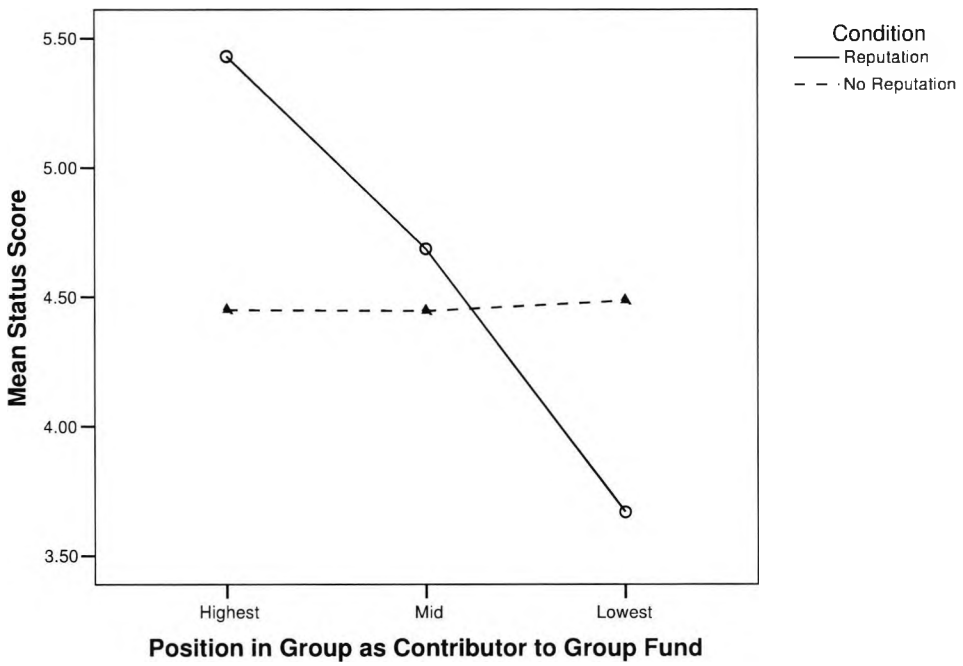

Figure 3.1. Relationship between contribution to the group fund and mean status score, Study 1.

[5] We also administered a short intelligence test along with the other questionnaires. We found no significant correlation between altruism and intelligence; r=.07, p>.05 and no significant interaction between reputation condition x intelligence in predicting altruism t(1,26)=.78 p>.05. See Appendix C

Study 2: Competitive Altruism in a Resource Dilemma

The results of Study 1 provide the first experimental support for the competitive altruism hypothesis. Altruists received higher status within their group, and were chosen as group leaders more often. This relationship was found in the reputation condition only. The aims of Study 2 were to test the generalisability of these results by examining a different form of altruism, showing restraint in a resource dilemma and a further prediction regarding the long-term benefits of altruism (Prediction 5). In a resource dilemma, individuals behave altruistically by taking a very small amount of a shared resource for themselves and leaving a large amount in the common resource to benefit others; however, people are always tempted to take more for themselves (Van Vugt, 2001). In addition, whereas in the previous experiment we used an indirect measure of status (vote for group leader) in Study 2 we included some more direct status measures to test our predictions.

Method

Participants and Design

One hundred and fifty first year students from an English university (126 females and 24 males, mean age 19.6 years) participated for course credits. There were 50 groups of 3 participants. All participants were assigned to the reputation condition from Study 1.

Procedure

Participants were randomly assigned to groups in the same way as in Study 1. The procedure was the also same, with the exception that the group task was a resource dilemma rather than a public good dilemma.

Introduction to the resource dilemma. The task was introduced as a group task in which people could earn money for themselves by harvesting monetary units from a common resource. At the start of the task, participants were informed that their group had access to a common resource of 500 pence (approximately 870 US$ cents). They were then free to take any amount from the common resource and to leave any amount in the common for the group. Participants were informed that they would keep what they took from the resource on the condition that the total amount taken from the resource by the three members was less than or equal to the amount

in the resource (500 pence). If the total amount taken exceeded 500 pence then each group member received nothing (Van Vugt, 2001).

The first round then started and participants completed the question, "There is 500 pence in the common resource, how much of it do you wish to take from the resource for yourself? The decision sheets were collected by the experimental assistants who then completed the feedback sheets with information about how much each group member had taken from the resource and returned them to the participants.

Dependent measures. At the same time, a two-part questionnaire designed to measure the perceived status of each member was also given to each participant (Appendix D). The first part comprised four questions (adapted from Anderson, John, Keltner, & Kring, 2001) that measured various status dimensions on 7-point scales, ranging low (1) to high (7). "Please rate each member of your group (yourself included) according to your perception of their *status* within the group?"; "....their prominence..." "...their respect..." and "...their influence....". These questions enabled us to assess status perceptions more directly than in Study 1 (vote for leadership). The same liking question was included.

Thereafter it was explained that there was to be a second, additional task in which for budgetary reasons, only two members could participate and earn money. Participants were told that they were one of the members, and were asked to rate their preference for each of the others to play the second task with, from not at all (1) to very strong preference (7).

After the questionnaires were completed at the end of the first round of the resource dilemma, a second round was completed with all group members. After this, participants were told this was the end of the study and that for time reasons there was not going to be an additional investment task.

Debriefing. Participants were debriefed as in Study 1. The 10 highest earners earned between 200 pence and 400 pence.

Results

Altruism

Is altruism costly? A one-way ANOVA was conducted on the amount earned (amount taken if the group did not take more than 500 pence in total). The results show that the altruists in each group earned significantly less (M = 147.45, SD =

93.15) than the other members of their group (M = 207.94, SD = 126.15), $F(1, 148)$ = 9.02, $p < .01$. Again, this supports Prediction 1.

Effect of reputation on altruism. A repeated measure ANOVA was conducted with round as the within subjects factor, which revealed a significant main effect of round $F(1, 149) = 52.49$, $p < .01$. The amount removed from the group resource decreased from round 1 (M = 141.99, SD = 87.0) to round 2 (M = 126.31, SD = 89.2), once it was clear that the resource decisions were public. Again, this result supports Prediction 2.

Status

A factor analysis was conducted on the four questions pertaining to status (influence, prominence, respect and status), yielding evidence for one factor, explaining 75% of the variance. The variable 'prominence' loaded negatively onto this factor and was excluded after a reliability analysis. The alpha on the remaining items was .90.

The overall zero-order correlation between restraint and status was significant, $r = -.65$, $p < .01$. In line with Prediction 3a, those who behaved altruistically by taking less from the resource were granted higher status. SRM analysis revealed that the target variance accounted for 54% of the total variance in peer status ratings indicating that group members did tend to agree on how much status each group member had. Altruism was significantly associated with this target variance, $r = -.76$, $p < .05$.

Pairwise comparisons revealed that status scores decreased significantly with decreasing altruistic behaviour in the dilemma, $p < .01$. The most altruistic (who took least) gained significantly higher status (M = 5.18, SD = .47) than the second most altruistic who gained significantly higher status (M = 4.61, SD = .50) than the least altruistic of the three (M = 3.87, SD = .83), F(2, 147) = 56.42, $p < .01$.[6]

[6] No specific predictions were made in our studies regarding sex differences in altruistic behaviour. In Study 1, a repeated measures ANOVA was conducted with sex as a between subjects factor. The results show a marginally significant main between subjects effect for sex, F (1, 62) = 3.67, $p < .06$. Men tend to contribute more (M = 65.02, SD = 3.42) than women (M = 54.43, SD = 3.52), but this was not affected by reputation condition, F (1, 62) < 1. In Study 2 there were no sex differences in altruism.

As in Study 1, we found no substantial correlation between altruism and liking, $r = .10$, *ns*, nor between liking and status, $r = .09$, *ns* (Prediction 3c).

Preference for future interaction partner. A univariate ANOVA was conducted with position as altruist in the group (took least, took mid amount, took most from the resource) as the within subjects factor and partner preference (1 = not at all, 7 = very strong preference) as the dependent variable to test Prediction 5. The factor, position, was significant $F(2, 147) = 77.43$; $p < .01$. Pairwise comparisons revealed that altruists were more strongly preferred as interaction partners. The most altruistic member (who took least) was preferred significantly more ($M = 5.77$, $SD = 0.83$) than the mid altruist who was preferred significantly more ($M = 4.93$, $SD = 1.25$) than the least altruistic person who was the preferred the least ($M = 3.21$, $SD = 1.49$), $F(2,147) = 77.43$, $p < .01$. This suggests that there may be long-term benefits for altruists in terms of being included in future coalitions (Prediction 5).[7]

Study 3: Costly Altruism Gives Status

Study 2 provided further support for the competitive altruism hypothesis in a different altruism domain, showing restraint in a resource dilemma. The final study extends the previous research by examining the relation between status and the costs of altruism in a public good dilemma (much the same as in Study 1). We manipulated the endowment size per group member (high or low) as well as their contribution to the group fund (high or low) to test whether costly altruism (those who gave everything they had) were awarded greater status (Prediction 7). In addition we tested a further long term benefit of altruism (Prediction 6) by including a dyadic Dictator game after the initial public goods game had been played. In a Dictator game, the first player, the "dictator", divides an endowment between himself and another person who simply receives what the dictator has allocated him.

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[7] We also administered the Big 5 Personality questionnaire at the same time as the other questionnaire (Appendix E). To test explore any personality differences, a repeated measures ANOVA was conducted on the Big Five personality dimensions (O,C,E,A,N) as the within subject factors and altruism status (altruist vs. norm vs. selfish) as the between subjects factor. The means for each personality dimension are shown in Figure x. The factor personality was significant $F(4, 147) = 86.41$, $p < .01$. There was also a significant interaction between personality and altruism status, $F(8, 147) = 2.60$, $p < .01$. Pairwise comparisons were made for the simple effects within the interaction, using Sidak corrected 95% confidence intervals. For the factor, Extraversion, altruists scored significantly higher than selfish participants ($M = 2.30$, $SD = .75$), $F(2, 147) = 3.37$, $p < .05$ For the factor Neuroticism, altruists scored lower ($M = 3.16$, $SD = .72$) than both the 'norm'($M = 3.51$, $SD = .68$) and the selfish participants ($M = 3.62$, $SD = .58$), $F(1, 64) = 4.34$, $p < .05$, and contributions to the group fund increased only in the reputation condition, $F(2, 147) = 4.03$, $p < .05$. There were not significant differences between the participants on the personality dimensions of Openness, Conscientiousness or Agreeableness.

We predicted that altruists in the public goods task would receive more in this game than non-altruists (Prediction 6).

Method

Participants and Design

Thirty-seven students from an English university (27 females and 10 males, mean age 20.8 years) volunteered to participate. The experiment was a within subject design in which the participants were observers of a public good game that was being played by four bogus group members via the computer.

Procedure

Participants arrived at the laboratory in groups of five people each and were then shown to individual cubicles (this was to give the impression that although on their own in the cubicle - they would be completing the task by way of interaction with the other four). In reality all were observers of a virtual group where the other "group" members and their actions were computer generated. Participants completed the experiment in front of a computer screen - they were informed that they were a member of a five-person group and were then assigned a unique letter code from A-E. In reality, ALL participants were assigned the letter E and played only against the computer.

The public goods dilemma task. Participants were told that they would be an observer initially. Their role would be to observe the other group members playing one round of a public goods task, before they themselves would join in. The participants were then introduced to the task in much the same way as in Study 1. They were told that the computer would randomly assign an endowment to each of the four group members. In reality the endowments were fixed (see Table 3.2). Thus, members in the high endowment condition (A, C) always received £10, whereas members in the low endowment condition received £5 (B, D). In addition, the participants observed during the game that A and B were the high contributors and (£5 each) and C and D the low contributors (£1 each). We predicted that B (low endowment, high contribution) would be seen as most altruistic.

Table 3.2

Computer manipulated Endowment Assignments

		Endowment	
		High	Low
Contribution	High	£5/£10 (Player A)	£5/£5 (Player B)
	Low	£1/£10 (Player C)	£1/£5 (Player D)

Dependent Measures. After the first task was finished, participants completed a two-part questionnaire designed to measure the perceived status of each member. The first part comprised the same status questions as in study 2 (with the exception of the prominence question).

After the end of the first task we explained that there was to be a second task in which, for budgetary reasons, only two members could participate. Participants were told that they were one of the members, and were asked to rate their preference for each of the others to play the second task with, from not at all (1) to very strong preference (7).

We then told the participants that they would play the second task, a Dictator game, with a randomly selected partner and that they could distribute £5 between themselves and their partner. Each person would receive what they had been allocated. The allocation was the main dependent measure.

Debriefing. When the task was finished the participants were debriefed and given the opportunity to ask questions. Nobody expressed any suspicion regarding the experiment. They were then paid according to what they earned.

Results

Manipulation Check

The manipulation check "Which player do you think incurred the greatest cost in the task?" revealed that player B (low endowment, high contribution)was

identified as the most altruistic person in the game (87%) with player A (high endowment, high contribution) chosen by only 13%. A chi squared analysis reveals that this difference is significant χ^2 (1, N = 37) = 19.70, p<.01.

Status

Who gets status? A factor analysis was conducted on the three questions pertaining to status (influence, respect and status), yielding evidence for one factor, explaining 65% of the variance. The alpha was .80 for the overall status measure.

A repeated measures ANOVA was conducted to examine differences in overall status scores across the manipulations with contribution (high or low) and endowment (high or low) as two within subjects variables. There was a significant interaction between contribution and endowment F(1, 36) = 5.54, p<.05. Main effects of contribution, F(1, 36) = 170.70 and endowment, F(1, 36) = 87.96 were also significant, ps <.01 and will be interpreted in light of the interaction. The means are shown in Table 3.

Pairwise comparisons show that B received much higher status than each of the other players. In order of status, Player B received highest status (M = 8.09), followed by A (high endowment, high contribution; M = 6.00), D (low endowment, low contribution; M = 3.86) and finally C (high endowment, low contribution; M = 2.66), and all these differences were significant, F(3, 34) = 117.77, p<.01. This supports Prediction 7.

Table 3.3

Mean Status of each player across Resource and Contribution conditions

Player	Mean Status	SD
A High resources/High contribution	6.00_a	1.56
B Low resources/High contribution	8.09_b	.79
C High resources/Low contribution	2.66_c	1.75
D Low resources/Low contribution	3.86_d	1.09

The means with a different subscript differ significantly from each other, p <.01

Preferred Partner. A repeated measures ANOVA was conducted with partner preference as the within subjects factor. The main effect of partner preference is significant F(3, 108) = 159.03, p<.01. Pairwise comparisons reveal that player B was the most preferred partner (M = 8.35, SD =.79), relative to A (M =

6.08, *SD* = 2.02), D (*M* = 2.89, *SD* = 1.47) and C (*M* = 1.97, *SD* = 1.66); $F(3, 34) = 170.95$, $p<.01$, which supports Prediction 5.

Dictator game. In line with Prediction 6, the zero-order correlation between the amount the partner gave in the public goods game and amount of money they received from the participant in the subsequent dictator game was significant, $r = .87$, $p < .01$. A univariate ANOVA revealed that Player B received the highest sum of money *M*B = 212.97, followed by *M*A = 152.30, *M*D = 77.30, and *M*C = 29.19; $F(3, 33) = 47.53$ $p < .01$. This suggests that at the end of this game, altruists were both better off than non-altruists and people were willing to more altruistic towards them.

General Discussion

In both studies we found support for several predictions derived from the competitive altruism hypothesis. Here we interpret the main research findings in light of this novel theory, and discuss some implications from this research.

Nice Guys Finish First

To explain how altruism in larger groups might come about, we argued that people sometimes compete with each other in terms of generosity because being seen as an altruist might produce long-term benefits. A first condition for competitive altruism is that the altruism must be costly in the short run. This is true by definition (Penner et al., 2005; Van Vugt & Van Lange, in press) and it was confirmed in these first two experiments in which the most altruistic group members earned the least in the games, either because they contributed relatively more to the group fund (Study 1) or they took relatively less from a common resource (Study 2). Thus, there are significant short-term costs associated with altruism which might prevent opportunists from engaging in such actions.

A second condition is that there must be compensating benefits in the long run. Of course, people need not be aware of these benefits when they make their initial decisions and in our experiments there is no reason to assume that people knew about these long-term benefits. We have tapped into these long-term benefits by examining the status consequences of altruism. Our findings unequivocally show that altruistic group members received more status. They were more respected, held in higher esteem, and were more likely to be chosen as group leaders. This was not the result of a generalized halo effect, because there was no evidence that altruists were generally better liked.

In the real-world many benefits accrue to those occupying high status positions in society such as power, wealth, a better health, a more positive mood and higher self-esteem, and reduced stress levels (Bass, 1990; Keltner, Grunfeld & Anderson, 2003; Marmot, 2004; Van Vugt, 2006). We were obviously unable to measure the long-term beneficial effects of status here. Yet in two studies we found that altruists were preferred as exchange partners in a follow-up investment task in which they could earn extra money. This suggests that altruism pays in the long run because it provides opportunities unavailable to non-altruists. Building a reputation as an altruist may therefore be an attractive long-term strategy, but whether it is beneficial in the real world remains yet to be seen.

Altruism must be Observable

The competitive altruism hypothesis also predicts that people should be more altruistic in a public setting where they have a chance to earn a reputation than in a private situation. In support of this prediction we found that group contributions increased in our experiments when people knew that their decisions were monitored by others. Furthermore, only in the reputation condition was there a correlation between altruism and status. Thus the public nature of the situation provides a good opportunity to advertise one's generosity (Henrich & Gil-White, 2001). This implies that people should show a preference for showing altruism in situations that facilitate such broadcast opportunities, and the provision of public goods is certainly one such domain (Smith & Bliege Bird, 2000).

Altruism as a Signal

A fourth prediction from the competitive altruism hypothesis is that altruism must be a reliable indicator of some underlying personality trait or quality. In other words, not everyone can afford to be generous all the time (Zahavi & Zahavi, 1997). We did attempt to look into the dimensions of personality and intelligence our studies. We found no evidence that altruists are more intelligent (as measured by an intelligence test) than non-altruists. This finding is the opposite of the finding of Millet & Dewitte (2006), who report that altruists *are* more intelligent. Their study used a somewhat different measure of general intelligence and also a reaction time task which may account for our differing results. It is clear that this area needs further investigation. In Study 2 we looked for possible personality differences between altruists and non-altruists. We found that altruists scored higher on extraversion and lower on neuroticism than non-altruists. Personality has been

linked to mate choice and general relationship success so aspects of personality may be an important quality to signal. There is good empirical evidence that internal personality traits are the most valued characteristics in a mate and that these equate to a desire for a mate high in agreeableness and extraversion, openness to experience and low in neuroticism (Buss and Barnes 1986; Goodwin 1990; Kenrick, Groth et al. 1993; Sprecher and Regan 2002). For both sexes the personality trait most desired on average was emotional stability, followed by agreeableness, then extraversion and finally intellect (Kenrick, Groth et al. 1993). These qualities differ depending on the mating strategy, but overall the most important personality characteristics were focused around maintenance and safety within a relationship. Again, this is a potential area for future research. It would also be interesting to see if observers (i.e. those *not* signalling the quality would perceive an altruist as having that quality.

We also make the following suggestions. First, altruists are more preferred as interaction partners. This is not surprising because people who are cooperative are generally viewed as more desirable group members (Moreland & Levine, 1982). Thus, altruism might be an indication of being a committed and resourceful group member, which is important for most working groups. Second, our findings show that altruists were preferred as group leaders, suggesting that people might attribute leader-like attributes to altruists. This is comparable with the results of Milinski, Semmann & Krambeck (2001) who found that public donations to a charity enhanced people's political reputation. Generosity, honesty, responsibility, and fairness are indeed seen as prototypical leadership qualities (Lord & Maher, 1991). Finally, altruists might also be seen as attractive romantic partners by members of the opposite sex, presumably because altruism signals resource potential (Jensen-Campbell, Graziano, & West, 1995). In sum, people who display altruistic actions might be seen as possessing a broad class of desirable traits and qualities.

Limitations, Strengths, and Implications of Research

There are several limitations of this research. First, the amount of money in the experiments was rather small with participants receiving endowments of as little as 100 pence (Study 1). If the earnings would be trivial then we would expect everyone to give away their full endowment to the group. Yet, consistent with previous research (De Cremer & van Vugt, 1999) group members contributed about 60% of their endowment and many contributed nothing at all. Furthermore, differences in altruism were consistently related to whether there was an opportunity

to advertise generosity or not, suggesting that participants acted as if the money was valuable to them. Furthermore, study 3 showed that as the costs of altruism rose the status benefits also increased, suggesting that observers were very sensitive to this information.

A second limitation is that based on the first two studies we cannot completely discard the fact that people might prefer altruists as future interaction partners in order to exploit them later on. In Study 2, for example, it is possible that people chose the altruist as partner in the follow-up game because they could then exploit their benevolence. We can effectively rule out this explanation, for two reasons. First, a posthoc analysis of the data in Study 2 shows that there is no correlation between the participant's own altruistic behaviour in the game and their preference for the altruist (r = -.11, *ns*). Furthermore, in the Dictator game in Study 3 participants gave away more money to altruists than non-altruists.

A strength of this research is also worth discussing. In our view, competitive altruism is provides a more realistic account of how cooperation in large groups comes about than evolutionary models based on kinship altruism or reciprocal altruism. These models have much difficulty in explaining altruism beyond the family or dyad (Van Vugt et al., 2007). Yet there is overwhelming evidence that humans often engage in self-sacrificial behaviours to help other people without expecting a direct return (Penner et al., 2005; Van Vugt et al., 2000). Competitive altruism provides one explanation. By being generous in public, people can advertise their qualities as potential exchange partners, reaping the benefits later on, and, the larger the group, the better the advertisement opportunities. Competitive altruism could also explain helping between groups. Consistent with the competitive altruism hypothesis, Nadler (2002) recently showed that high status groups offer help to lower status groups in order to maintain their privileged position in the social hierarchy. We do not claim, however, that our theory explains all forms of altruism in society, for example large anonymous gifts, and additional theories are needed to account for these.

The competitive altruism hypothesis has several implications for theory and practice. A first implication is that it provides a rationale for why nice guys may finish first in society– a pleasing thought. There has been much scientific debate about this (Axelrod, 1984; Dawkins, 1976). Our research suggests that niceness pays because in a world where people can choose who they want to interact with

altruists create more opportunities for themselves than selfish people. A practical implication is that altruism in society can be fostered by encouraging people to publicly display their generosity. For example, naming the identity of donors and revealing the amount they have given should set up a competitive altruism process in which people try to outcompete each other in their charity donations. Our hypothesis suggests that this could backfire, however, when the amount donated by the first people is so large that any additional contributions pale in comparison.

In conclusion, competitive altruism provides a new way of thinking about human sociality. It helps to explain why humans are unusually altruistic and cooperative even (or especially) when they operate in large groups. The exact role of competitive altruism in understanding many uniquely human qualities such as heroism, prestige, volunteering, and philanthropy must be addressed in future research.

CHAPTER 4

THE REPUTATION BENEFITS OF WASTEFUL PUBLIC GOOD CONTRIBUTIONS: *STUDIES 4 & 5*[1]

Abstract

Many generous behaviours such as such as giving to charity or blood donation are difficult to explain using existing reciprocity theories. According to competitive altruism these behaviours could be explained through the desire to be viewed as an altruist by the population at large. Public good contributions signal people's quality as potential collaborators and such behaviour could lead to large return benefits for the individuals who perform these acts if individuals are more willing to give status to or collaborate with a known altruist. Performing costly acts in order to gain a good reputation, rather than building up a network of reciprocal obligations, may be behind the behaviour. A paradoxical implication is that reputation gains are stronger for behaviours that appear more irrational. This leads to the hypothesis that conspicuous displays of generosity (like making worthless public good contributions) will have stronger reputation benefits. Here we present two experiments, showing that, in a reputation environment, public good contributions increase even if these goods are already provided by others (Study 4) or are simply unattainable (Study 5). Wasteful contributions increased the status of the giver, suggesting that non-strategic altruism and cooperation have great signalling power.

[1] These studies have been submitted as Hardy, C. L. & Van Vugt, M. (2007). Giving for Glory: The Reputation Benefits of Conspicuous Contributions to Public Goods, *Proceedings of the Royal Society B* (resubmitted March 2007).

Chapter Four

The Reputation Benefits of Wasteful Contributions

"We should often blush at our noblest deeds if the world were to see all their underlying motives."

-Francois de La Rochefoucauld

Unselfish acts in large groups of unrelated individuals are a common feature in human society, for instance, charity donations, volunteering, and resource conservation (Van Vugt & Snyder, 2002). Laboratory studies on such public goods suggest that a sizeable portion of human subjects across many different samples and cultures make unselfish economic decisions in such games (Kurzban & Houser, 2005). Over the past decades, behavioural scientists have made substantial progress in developing models to explain human altruism (Fehr & Fischbacher, 2003). Reciprocal altruism theory (Trivers, 1971) has emerged as the main explanation for altruism toward unrelated individuals. Although this model has received considerable empirical support (Axelrod & Hamilton, 1981), it cannot really account for altruistic acts in one-shot interactions (Fehr & Fischbacher, 2003) or larger groups (Boyd & Richerson, 1988).

Concerns with reputation

Some evolutionary theorists suggest that altruism is pervasive in human society, because people are keen to invest in a pro-social reputation (Alexander, 1987; Roberts, 1998). Reputation-based altruism might produce a better return than building up a network of reciprocal obligations (Milinski, Semmann & Krambeck, 2002) as there is less risk to the altruist. One potential problem with reciprocity is that an individual might cheat by failing to adhere to their side of the deal. If altruistic behaviour serves as a signal of individual quality then the altruist may benefit in other ways, such as increasing its mating opportunities.

In an environment with partner choice there is likely to be competition for the most cooperative partners (Roberts, 1998), which, in turn, creates pressures on people to invest in an altruistic reputation to signal their qualities as a potential exchange partner or mate. This signalling theory, referred to as competitive altruism, generates various novel predictions, which have received support in empirical research. For instance, people are more cooperative if they think they are being

watched (Barclay, 2004; Bateson, Nettle, & Roberts, 2006; Haley & Fessler, 2005); altruists have more status within their group (Hardy & Van Vugt, 2006; Milinski, Semmann & Krambeck, 2002); and they are selectively preferred as interaction partners in cooperative games (Guererk & Rockenbach, 2006, Hardy & Van Vugt, 2006).

Altruism as a signal

Another unique prediction of this theory is that if altruism is primarily a signal it does not really matter whether the helping act benefits the recipient because the "real" recipients are the interested audience. Particularly in public goods, a wasted contribution might have signalling potential because it is clearly non-strategic. For instance, it is not in the giver's rational self-interest to contribute to a good that is either already provided by others or is simply beyond reach. Yet people still give. As a real-world example, after the 2005 tsunami, several charities (like Medicines Sans Frontieres) were so overwhelmed with pledges of financial help that they publicly announced that any extra money could not be used; nevertheless, people continued to make donations. In addition people are quite willing to contribute to public goods, like the environment, even though they realise their donation is negligible (Milinski, Semmann, Krambeck & Marotzke, 2006).

Other examples include, potlaches among Native American chiefs to cement alliances with neighbouring clans (Bliege Bird & Smith, 2005), the altruistic giving of turtle meat at funeral ceremonies in Micronesia to advertise the virtues of the family of the deceased (Smith & Bliege Bird, 2000). In an experimental study Caporeal et al. (1989) reported that more people than expected contributed to a common pool to help their group earn a bonus. The finding was even more striking when in trials where certain individuals were designated as 'contributors' in order to ensure a sufficient proportion of the group donated their money to gain the bonus, it was often found that individuals designated 'non-contributors' donated their money to the pool, seemingly to be on the safe side and make sure the bonus would be received. Reputation concerns may be at work here.

Research Predictions

If public good contributions primarily act as signals then it should not matter whether or not the act itself has the desired effect as long as it is perceived as helpful. This implies that worthless contributions should bring as much, if not greater, reputation benefits than contributions resulting in the provision of the good.

In public goods, particularly those with a step-level (like public broadcasting), people may contribute for selfish reasons, especially if they are critical to public good provision. But (paradoxically) this should undermine the signalling potential of this act.

In this study, we compare conditions in which contributions are critical to the attainment of the good (low signal value) with conditions in which contributions are essentially wasted (high signal value). Thus, we examine public goods that either have versus have not been provided by others (Study 1) and public goods that are either attainable versus unattainable (Study 2). First, we predict that public good contributions will overall be higher in a reputation environment (Hypothesis 1). Yet, we also predict that reputation-based contributions increase more when they are wasted (Hypothesis 2). Finally, we predict that in a reputation environment, such conspicuous, wasted contributions increase the status and prestige of the givers to a relatively greater extent than contributions that result in the provision of the good - the latter act may be entirely selfishly motivated (Hypothesis 3).

Study 4: Contributions to a Public Good that is already Provided

Method

Participants and Design

Eighty six university students (66 females and 20 males, mean age 20.6 years) participated for course credit. In a within subjects design all participants were assigned to be Player 3 of a (fictional) 3-person group.

The participants played a sequential public goods game with 2 conditions (Good not yet provided vs. Good already provided). Half the participants were randomly allocated to each condition.

Procedure

Upon arrival into the laboratory, participants were issued with an identification number (based simply on the order that they arrived) and seated in adjacent seats. They were informed that they were in a group of three people, two of whom had been in a previous session in another classroom. They were the third member of the group (there were in fact several experimental sessions) and had already made their decisions in the game (this was bogus information). It was necessary to use deception to ensure that subjects were either exposed to a situation

in which the other members had already provided the good or not. In the debriefing there were no suspicions raised regarding this procedure and we therefore assume everyone believed it. They were informed that the groups had been randomly determined.

Introduction to the public good dilemma. Once everyone was seated the task was introduced as a contribution task to be completed in groups of three in which people could earn money for themselves and for their group. Participants received written instructions about the step-level game and some possible outcome scenarios to illustrate the game. To avoid endgame effects, students were not told how many rounds of the task they would complete. Participants were also informed that it was not financially possible to pay every person what they earned in the task, but that the experimenter would pay ten random people the amount they earned. Winners were informed by email and were sent their money by check after the study. At the start of the session participants received an endowment of 100 pence (approximately 175 US cents). They were free to contribute any amount from 0 - 100 pence to the private fund (p), which is kept by the individual, and any amount to the group fund (100-p). If the total amount contributed to the group fund reached a certain amount (the step level) then each person in the group would earn a bonus of 150 pence each. This bonus would be paid to each member regardless of how much they contributed. Thus the total sum an individual would earn would be the amount they kept in the private fund, plus a bonus if the group had reached the step level. If the group did not reach the step level, then each person would earn only what they had kept in their private fund and the amount they had contributed to the group fund would be lost.

Participants received different information regarding their other 2 group members, depending on the condition they were in. They were then told that the other two members of their group had already completed the game in a previous session. Subjects were aware that there were other scheduled sessions for the experiment, because they could choose in advance which one to attend. In the debriefing there were no suspicions raised regarding this procedure and we therefore assume everyone believed that these groups really existed. In reality, although there *were* sessions run at different times, the two other group members and their contributions were fictional.

Good already provided. Information about the step-level was varied. All subjects were told that the computer would determine the step-level for each group (anywhere between £0.50 and £4). For half of the participants, the step level was fixed at 150 pence and the amount that their fellow group members had already contributed to the group fund added up to 155 pence. So, in this condition the good had already been provided and each member received the 150 pence bonus.

Good not provided. For the other half, the step level was 200 pence. They also received written information that the other two members of their group had contributed 155 pence in total, which meant that in the this condition the participant could provide the good for their group and could still obtain the bonus.

Manipulation of reputation conditions. Participants were also given different information according to the condition they were assigned to. In the No reputation condition (1), they were told "After this game you will play another monetary game. Your contributions in this game are anonymous". In the reputation condition (2), they were told, "After this game you will play another monetary game. Your contributions in this game will be viewed by the other members of the group".

Participants were asked to complete a two-part question relating to their contribution choice, "You are in a group with 3 other people. The other 2 members of your group are fellow SP300 (the course they were gaining credit for) students who have played earlier today. Each person has been given an endowment of 100 pence. You are now asked to indicate the amounts of your endowment that you wish to contribute to a) the group fund (to earn the group bonus) and b) your private fund (which you get to keep regardless of the outcome of the game)." The participants were instructed to ensure the total sum added up to 100 pence, which was checked by one of the experimental assistants.

All participants played the game just once, in only one of the combined 'good' and 'reputation' conditions.

Manipulation check of reputation. At the end of the experiment, each participant was asked to indicate how visible they felt by rating eight adjectives on a 7-point scales ranging from not at all (1) to very much (7): e.g., "When I made my decisions I felt concerned" "..conspicuous" "..anonymous" (Jorgenson & Papciak, 1981).

Debriefing. After they made their contribution decisions and answered some questions, the session ended. They were carefully debriefed, paid out, and dismissed

(because their earnings depended on the experimental condition, each subject received the same amount (£1) at the end of the experiment).

Results

Manipulation Check

The eight scales relating to the reputation / no reputation manipulation were turned into one scale ($\alpha = 0.86$). The mean score was subjected to a one-way ANOVA. The result was significant, $F(1, 76) = 156.55$, $p < .01$; participants in the reputation condition felt more visible ($M = 4.63$, $SD = .53$) than those in the no reputation condition ($M = 2.58$, $SD = .78$). Both scores significantly differed from the scale midpoint (reputation condition $t(32) = 6.9$, no reputation condition $t(32) = 10.44$; $p < .001$).

Effect of reputation condition on contributions

All results are collapsed across gender as on initial exploration of the data no significant sex differences were noted. There was a general trend for subjects in the reputation condition to invest more in the group fund and there was also an effect of public good on the amounts given (See Figure 1). We employed a univariate analysis of variance (ANOVA) to analyse the contributions in each of the conditions, following a 2(Public Good) x 2(Reputation) between subject design. This revealed a significant interaction between public good and reputation, $F(1, 82) = 5.94$, $p < .05$, which qualified the two significant main effects, respectively for public good, $F(1, 82) = 31.70$, $p < .001$, and reputation, $F(1, 82) = 15.08$, $p < .001$. The main effect for reputation showed that contributions were higher in the reputation ($M = 61.16$, $SE = 2.87$) than no reputation conditions ($M = 41.32$, $SE = 4.23$), supporting Hypothesis 1.

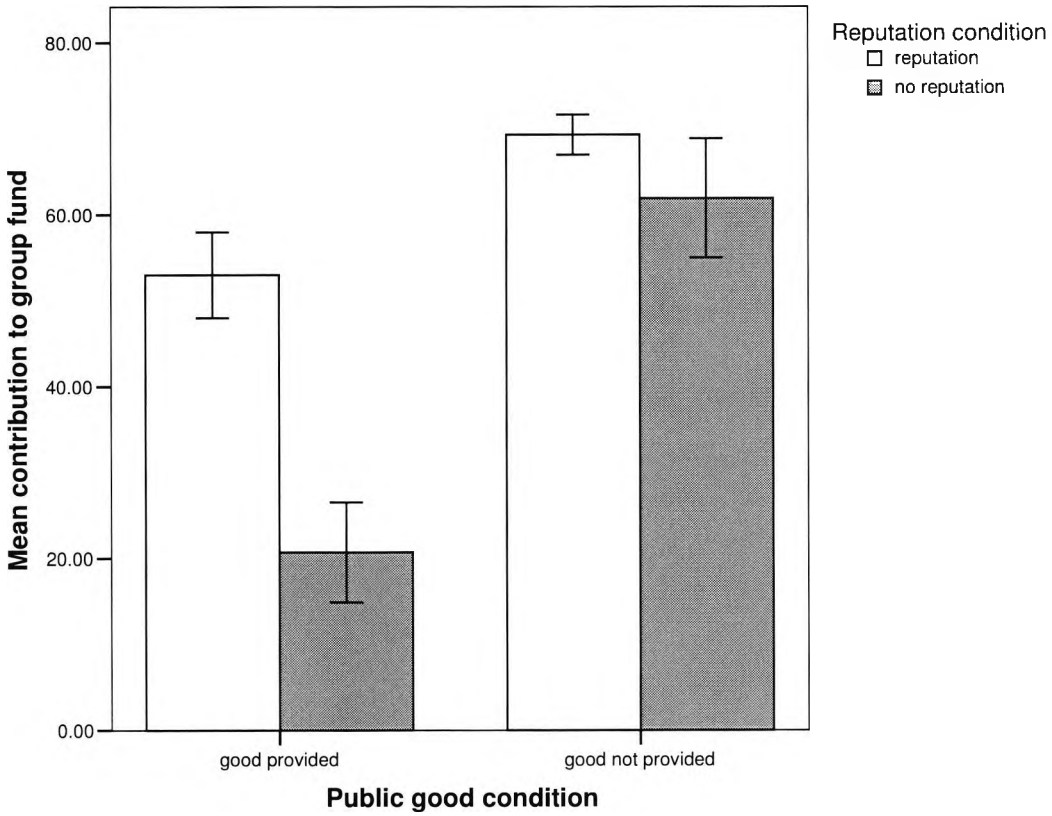

Figure 4.1. Mean amount (in pence) contributed to group fund in 'Good provided' and 'Good Not Provided' conditions (Study 4). The bars represent reputation conditions. Error bars: +/- 1 *SE*.

Supporting Hypothesis 2, decomposing the Public Good x Reputation interaction revealed that when the good was already provided individuals contributed significantly more in the reputation (M = 53.0, SE = 4.01) than no reputation condition (M = 20.71, SE = 5.87, p = .00), $F(1, 82) = 20.61$, $p<.01$. However, when the good was not yet provided contributions in the reputation (M = 69.31, SE = 4.08) versus no reputation conditions (M = 61.92, SE = 6.09) were virtually the same, $F(1, 82) = 1.02$, p = .32. Furthermore, in the reputation condition, the contribution difference between the two public good conditions was much smaller ($Mdiff$ = 16.31, $F(1, 82) = 8.13$, $p<.01$), than in the no reputation condition, ($Mdiff$ = 41.21, $F(1, 82) = 8.13$, $p<.001$). This study demonstrates the importance of reputations in producing conspicuous, worthless acts of altruism. We wanted to conceptually replicate this finding in a second experiment and test the third hypothesis.

Study 5: Contributions to a Public Good that can't be Attained

Method

Participants and Design

Seventy two university students (58 females and 14 males, mean age 20.8 years) participated for course credit. They participated in groups of three in a public goods dilemma game much like the first experiment. This experiment was a mixed design where subjects participated in one large laboratory space with tables and chairs.

Procedure

Upon arrival in the room, participants were issued with an identification number (based simply on the order that they arrived in the room) and seated in adjacent seats. They were randomly assigned to groups of three using a random number generator to ensure that friends were not in the same group.

Introduction to the public good dilemma. Once everyone was seated the task was introduced as in Study 4 as a contribution task to be completed in groups of three in which people could earn money for themselves and for their group. The reputation conditions were the same as Study 4, but the public good conditions differed.

Public good not attainable. In this condition participants were informed that the step level was 350 pence (which was beyond the reach of the group).

Public good attainable. In this condition participants were informed that the step level was 150 pence.

Dependent measures. The remainder of the session was identical to Study 4. However before leaving the experiment, the participants completed a questionnaire with three questions, measuring the status of each of the other two players in their group on 7-point scales, ranging low (1) to high (7): "Please rate each member of your group (yourself included) according to your perception of their *status* within the group?"; "...their respect..." and "...their influence....". After this, the experiment finished and subjects were carefully debriefed and paid out (because their earnings depended on the experimental condition, each subject received the same amount, £1).

Results

Manipulation Check

The eight scales relating to the reputation / no reputation manipulation were turned into one scale ($\alpha = 0.86$). The mean score was subjected to a one-way ANOVA. The result was significant, $F(1, 70) = 175.29$, $p < .01$; participants in the reputation condition felt more visible ($M = 4.62$, $SD = .51$) than those in the no reputation condition ($M = 2.53$, $SD = .82$). Both scores significantly differed from the scale midpoint (reputation condition $t(44) = 14.56$, no reputation condition $t(27) = 61.3$; $p < .01$).

Effect of reputation and public good conditions on contributions

As in Study 1, results presented are collapsed across gender. Subjects in the reputation condition appeared to contribute more to the group fund but the public good condition also affected the amounts contributed.

We used a univariate analysis of variance (ANOVA) to analyse the contributions of each of the subjects in a 2 (Public good) x 2 (Reputation) design. This revealed three significant effects; A significant Public Good x Reputation interaction, $F(1, 68) = 6.09$, $p < .05$, which qualified the main effects for public good, $F(1, 68) = 33.84$, $p < .01$, and reputation, $F(1, 68) = 9.85$, $p < .01$. Thus, Hypothesis 1 was supported: Contributions were higher in the reputation (M = 54.58) than in the no reputation condition (M = 36.63). The interaction effect revealed that reputation influenced amount contributed to the group fund only when the good was not attainable. When it was *not* attainable people contributed significantly more to the group fund in the reputation condition ($M = 45.0$, $SE = 5.11$) than the no reputation condition ($M = 12.92$, $SE = 6.78$), $F(1, 68) = 14.36$, $p < .01$. Yet when the good *was* attainable, contributions did not differ between the reputation ($M = 64.17$, $SE = 4.78$) and no reputation ($M = 60.33$, $SE = 6.04$) conditions, $F(1, 68) = .25$, $p = .62$. See Figure 2. Finally, in the reputation condition, the contribution difference between the two good conditions ($Mdiff = 19.17$), $F(1, 68) = 7.52$, $p < .01$ was much smaller than in the no reputation condition ($Mdiff = 47.42$), $F(1, 68) = 27.38$, $p < .01$. This is a different demonstration of the role of reputations in producing conspicuous, wasteful altruistic behaviours.

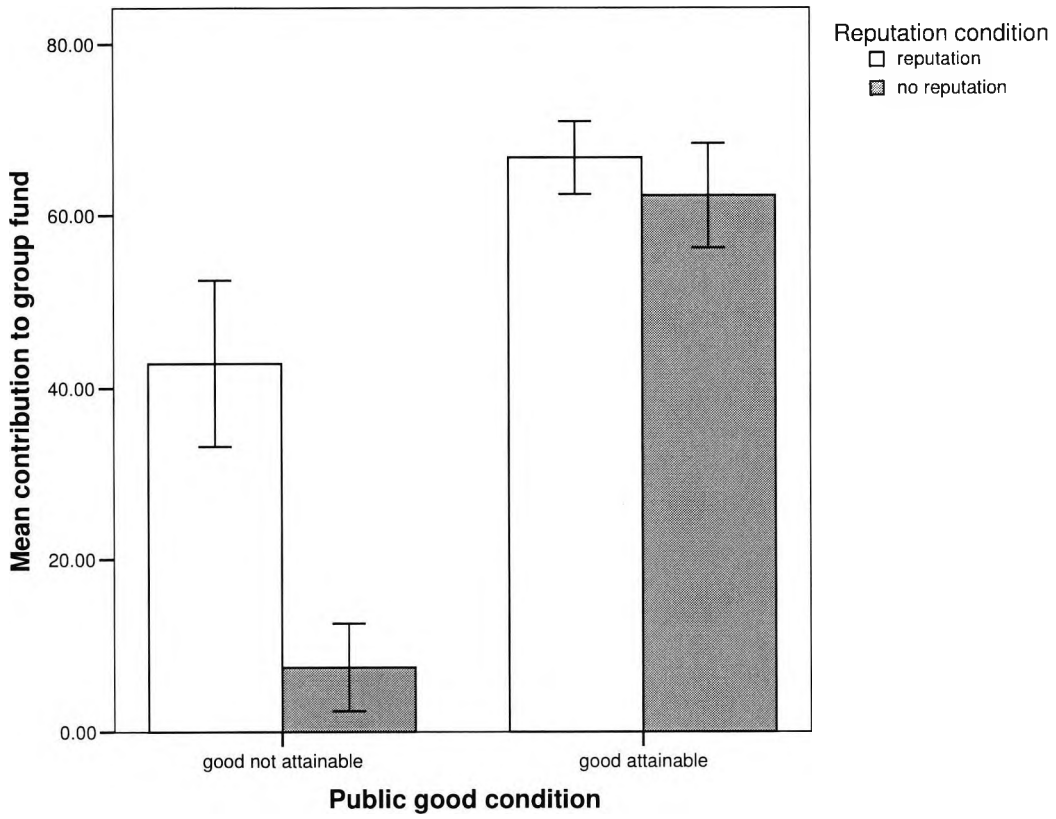

Figure 4.2. Mean amount (in pence) contributed to group fund in 'Good not attainable' and 'Good attainable' conditions (Study 5). The bars represent reputation conditions. Error bars: +/- 1 *SE*

Status

A factor analysis was conducted on the three questions on the status questionnaire, which yielded evidence for a single factor explaining 75% of the variance. The mean ratings across the questions were used to form a single status scale (α =0.92). Across subjects the correlation between contribution and perceived status was positive and significant, $r = .38$, $p < .01$. Not surprising, this correlation was only obtained in the reputation condition (where people knew each others' contributions), $r = .60$, $p < .001$, but not in the no reputation condition, $r = .05$; $p = .81$; $z = 1.84$, $p < .05$.

Finally, a repeated measures ANOVA was conducted with the altruistic position of each member in the group (highest contributor, mid contributor, lowest contributor) as the within groups factor and reputation and public good conditions as between groups factors. There was a significant 3-way interaction between position

in group, reputation and public good, $F(2, 40) = 5.53$, $p<.01$, which qualified a significant interaction between position and reputation, $F(2, 40) = 30.94$, $p < .01$ and main effect for position, $F(2, 40) = 26.34$; $p<.01$. In the reputation condition, status scores increased significantly the more people contributed to the group fund, $F(2, 19) = 64.32$, $p < .01$, (hc$M$ = 4.95, SE = .08, mc$M$ = 3.81, SE = .11, lc$M$ = 3.20, SE =.17). Furthermore, as predicted in Hypothesis 3, when the good was *not* attainable, altruists got significantly higher status (M = 5.41, SE = .12) than when the good was attainable (M = 4.49, SE = .11), $F(1, 20) = 7.21$ $p < .01$. See Figure 3.

Finally, in the no reputation condition there were no significant differences between the mean status scores for each member $F(2, 19) = .21$, *ns*, (across the public good conditions, hc$M$ = 3.78, SE = .11, mc$M$ = 3.73, SE = .14, lc$M$ = 3.86, SE =.22). Thus, the status or reputation of individuals increased when their contributions were wasted, because the public good was unattainable.

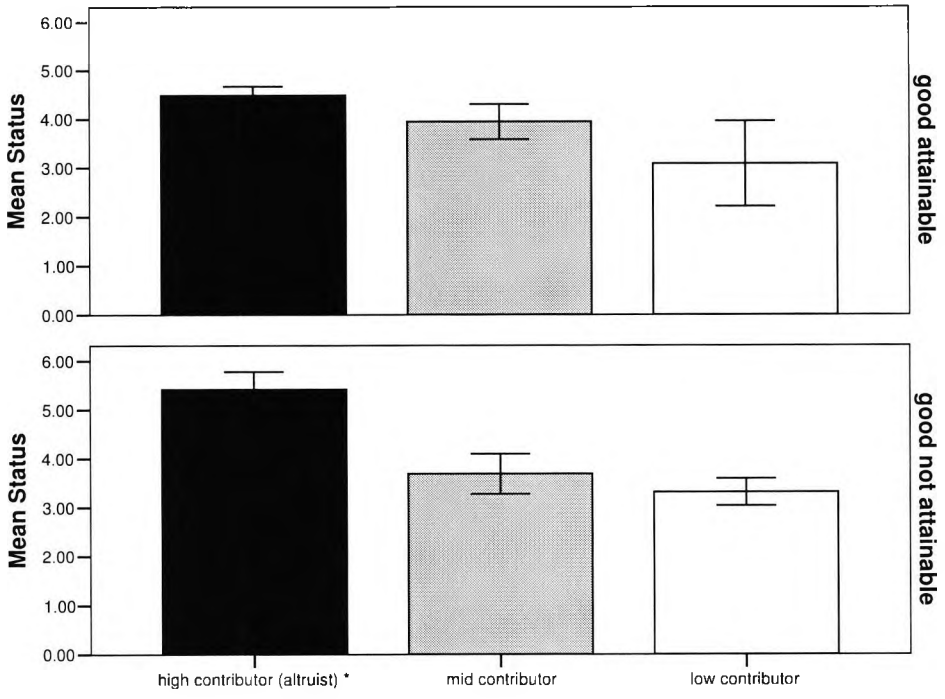

Figure 4.3. Mean status scores in both '*good*' conditions for Reputation environment (Study 5). The bars represent the altruistic position of each group member. * = difference between conditions is significant, $p<.01$. Error bars: +/- 1 *SE*

General Discussion

Reputation concerns lead to wasteful contributions

Data from two experiments revealed that reputation concerns may so pervasive in humans that it encourages them to engage in wasteful (altruistic) behaviours. First we predicted and found that people are more generous in public situations where they have a chance to earn a pro-social reputation. The public nature of the situation provides a good opportunity to advertise one's generosity (Henrich & Gil-White, 2001) and implies that people should show a preference for showing altruism in situations that facilitate such broadcast opportunities – a finding which is supported in the literature. For example, the experimental social psychology literature shows that an increase in the visibility and decrease in the anonymity of individuals enhances their cooperation in social dilemmas (Axelrod, 1984; Fox & Guyer, 1978; Jerdee & Rosen, 1974). Even a pair of artificial eyes on a computer screen enhances people's cooperation more in an otherwise entirely anonymous situation (Haley & Fessler, 2005). A look around the modern media also supports this finding – the heroic acts of strangers helping in emergencies, soldiers saving the lives of comrades, and philanthropic events like Comic Relief and Live Aid attract large crowds. Donations to charity increase when donors are publicly named (Harbaugh, 1998). People also spend a great deal of their conversations gossiping about the moral aspects of others' behaviour (Dunbar, 2004).

This research moves beyond these findings to suggest that reputation concerns particularly affect unnecessary contributions and led people to make wasteful donations to public goods that were either already provided by others (Study 4) or unattainable (Study 5). Contributions increased dramatically when they had no effect on the provision of public goods, whereas when contributions were critical to public goods, reputations did not matter much. The public nature of these goods offers an excellent opportunity for people to advertise their generosity to others regardless of the efficacy of the helping act (Smith & Bliege Bird, 2000).

Wasteful altruism has a striking similarity to the concept of conspicuous consumption (Veblen, 1973), and our results suggest that conspicuous altruistic acts increase the prestige of the donor. This is in line with research by Souzou & Seymour (2005) who model that costly, but worthless gifts may increase the attractiveness of males and thus facilitate courtship. Outside the laboratory, conspicuous altruism has been reported in contexts such as the altruistic giving of

turtle meat at funeral ceremonies in Micronesia to advertise the virtues of the family of the deceased (Smith & Bliege Bird, 2000), big-game meat distributions (Hawkes and Bliege Bird 2002), big-man feasting (Wiessner and Schiefenhovel, 1995), Northwest Coast Indian potlatching (Boone 1998), and charity galas in capitalist society (Veblen, 1973). Thus, a worthless donation might give out a stronger signal of one's resource potential in social exchanges (Sozou & Seymour, 2005).

Limitations

There are potential limitations of this research. First, the amount of money in the experiments was rather small with subjects receiving endowments of as little as £1. Did these relatively low amounts make people more likely to give? If the stakes were deemed trivial we expect everyone to give away just enough to reach the provision point, or perhaps give away all of their endowment. Yet, consistent with previous research (De Cremer & van Vugt, 1999) group members contributed about 60% of their endowment and many contributed nothing at all. Furthermore, differences in altruism were consistently related to whether there was an opportunity to advertise generosity or not, suggesting that participants acted as if the money was valuable to them. Secondly, when the good was not already provided or was attainable, there were no significant differences between reputation conditions (although there was a trend that those in the Reputation condition contributed more than those in the No Reputation condition). This result may be due to a facet of the experimental design as it was obvious to all participants that they needed to contribute a certain amount to gain the good for the group and there was no real reason not to give this amount. This may have inflated the amount people would give in the no reputation condition.

Are there other reasons as to why people were wasteful? Well, even though the subjects interacted anonymously, they might have wished to create a positive image with the experimenter, perhaps gaining social acceptance by complying with socially desirable norms and acting more cooperatively than they would have done had the experimental design been truly anonymous (Hogg & Abrams 1999). Again, however, differences in altruism were consistently related to whether there was an opportunity to advertise generosity or not, suggesting that participants this was not the case. Or perhaps people were confused. Andreoni (1995) found that between 10-30% of public good contributions occur because people do not fully understand the game pay-offs. Our cooperation rates were quite similar to this.

Implications

These findings support reputation-based theories such as competitive altruism theory, which offers an account how cooperation in larger groups might have come about in human evolutionary history (Roberts, 1998). This theory suggests that people compete with each other in generosity because it pays to invest in a pro-social reputation. Especially in situations in which people can choose interaction partners and are able to monitor each other's behaviour, either directly or indirectly, through a third party (often with the help of language), it pays for people to be seen as generous. Although these experiments did not examine the long-term benefits of conspicuous altruism, our status data show that conspicuous altruists received more status in the group. Perhaps a wasted donation gives out a stronger signal of one's resource potential in social exchanges because it is clearly not in the giver's rational self-interest to give (Hardy & Van Vugt, 2006; Sozou & Seymour, 2005).[2]

Our findings have several implications for theory and practice. First it supports the notion that "nice guys finish first" (Axelrod, 1984; Dawkins, 1976). Niceness pays because in a world where people can choose who they want to interact with; altruists create opportunities for themselves that are simply not available to selfish people. A practical implication is that altruism in society can be fostered by encouraging people to publicly display their generosity, for example, naming the identity of donors and the size of donations. At the same time, our findings suggests that such reputation strategies can backfire, because people can be easily persuaded to contribute to worthless or undeserving public causes, which drains their resources. Thus, it is important for society to determine which causes are in need of help and how much help is needed.

[2] It is also worth noting that although public good contributions are often regarded as examples of altruism (Fehr & Fischbacher, 2003), in these experiments public good contributions may not necessarily altruistic, because there is either no delivery of benefits to others (for example, when someone's contribution is worthless) or there is no cost to oneself (for example, when someone's contribution is critical). Therefore perhaps the term co-operation or generosity is more appropriate in this instance.

CHAPTER 5

THE EFFECT OF STATUS ON VOLUNTARY CONTRIBUTIONS TO PUBLIC GOODS: *STUDIES 6 & 7*

Abstract

In a competitive environment once high status has been gained, people should aim to protect or increase their status position within the group (and hence their access to scarce resources). Strategies such as increased altruism may be a way to do this. Two studies examine whether altruistic behaviour is used to reinforce and maintain status in the group by monitoring altruistic behaviour of high versus low status group members. Study 6 showed that high status members behave more altruistically than low status members. Furthermore, a rise in social status during a group task increases altruism, whereas a loss in status decreases altruism (Study 7). These results support the idea that by behaving altruistically group members "compete" for social status within their group. Competitive altruism theory may account for a wide range of altruistic behaviours that are difficult to explain through standard kinship or reciprocity models.

The Effect of Status on Voluntary Contributions to Public Goods

"If, in addition to showing that the wearer can afford to consume freely and uneconomically, it can also be shown in the same stroke that he or she is not under the necessity of earning a livelihood, the evidence of social worth is enhanced in a very considerable degree" (Veblen 1994 [1899]:105).

In 1973, Thorstein Veblen's theories of 'conspicuous consumption and conspicuous waste' suggested that much of display behaviour can be understood in terms of its function in gaining, advertising and reinforcing social status. He drew attention to the notion that wasteful expenditures of time and money (such as giving to charity) and conspicuous displays of lack of interest in economic profit may function as a means of gaining competitive advantages over others. Since this time economists and psychologists have come to recognise that status and concerns for status may affect both economic decisions and the allocation of resources (e.g. Congelton, 1989; Frank, 1985 & Hopkins and Kornienko 2004).

There are a number of ways in which concerns for status could affect altruism. First, an individual's contribution may affect how they are ranked relative to other people (as examined previously in Chapter 3), and hence a 'motivation' for giving may be status acquisition. Second, an individual's status prior to giving may influence their contribution behaviour. Although her contribution to the New York Library may have enhanced her status, Brook Astor was already known to be the grand-dame of philanthropy (prior to giving), and it is possible that this initial status influenced her contribution. Similarly, Bill Gates, the richest man in the US was well known for *not* giving away his wealth until the emergence of the *Slate 60* (a list of the top 60 charitable contributions) when he set up the Bill and Melinda Gates Foundation, (now the largest charity in the world), thus making him *both* the wealthiest *and* the most philanthropic individual (Slate, 2006) It's possible that his initial status prompted him to contribute in this way. Warren Buffett, ranked by *Forbes* as the second richest man on Earth, announced recently that he would be giving away most of his $43.2 billion fortune to charity (mostly to the Bill and Melinda Gates Foundation, incidentally). Another example is the practice of high profile, high status companies such as Accenture, Procter & Gamble, Pfizer, Toyota

Motor and Starbucks who have recently lent executives to non-profit organisations, for no charge and often for up to 3 years. These examples may serve to illustrate the potential connection between status and altruism.

While substantial theoretical work has been conducted to examine the potential effects of status, little work has been done to demonstrate its actual behavioural implications. The present studies examine whether high status individuals such as leaders are indeed more motivated to pursue the collective interest at the expense of their own self interest. In this article, I set out to investigate this question by examining whether leaders contribute more towards a public good than followers.

Competitive Altruism and Status

The competitive altruism hypothesis suggests that altruism and social status are closely interrelated. According to the theory, status hierarchies are based, in part, on the relative contributions that individuals make towards public goods. The major premise is that certain environments, i.e. when reputations are at stake, are likely to induce competition. On the one hand, people will be competing with each other in terms of generosity to advertise themselves as future exchange partners, and on the other hand, observers are competing for access to the most altruistic partners -- hence the term "competitive altruism" (Van Vugt, Roberts, & Hardy, 2007).

So how might this give rise to the prediction that high status promotes altruism? One suggestion is that altruism involves long-range thinking, whereby individuals incur initial costs in order to enhance their status and reputation. The decision process might be entirely automatic as individuals may not be aware of the reasons for behaving altruistically or selfishly (cf. Bargh & Chartrand, 1999). The implicit connection between altruism and status gives rise to the prediction that variations in social status predict variations in altruistic displays. High-status cues might lead individuals to focus more on their reputation and the long-term benefits of altruism, whereas low-status cues might lead to a narrow focus on their immediate benefits (Keltner, Gruenfeld, & Anderson, 2003). In a competitive environment once high status has been gained, people should aim to protect or increase their status position within the group (and hence their access to scarce resources). Strategies such as increased altruism may be a way to do this. This notion is also in line with the view from costly signalling theory (Zahavi, 1998). People with high status would behave altruistically to signal that they have the

resources/abilities to do so, so altruism signals whatever abilities are required to obtain the resources with which to signal. Altruism may also help to legitimate one's position. By giving away goods or money etc, someone who is high status may secure their status in the eyes of others as a person who is rightfully in their position. High status people may even be 'expected' (perhaps by social norms) to be more altruistic. This status legitimisation was an argument for explaining the competitive gift-giving potlatch societies among the Kwakiutl natives of North America's North-West Coast (Gregory, 1980). In gift cultures, social status is determined not by what you control but by what you give away so chiefs can control and maintain their positions by holding extravagant ceremonies

Leadership

A look at the leadership literature supports the idea that those with high status (such as leaders) are often more generous than those with lower status (such as followers) (Van Vugt, 2006). For example, a relationship between leadership and prosocial behaviours is often cited (e.g. Bass, 1990). Specifically, generosity has been found to be one of the most important traits of a leader possibly because this behaviour provides followers with valuable information about the prosocial inclination of their leaders (Van Vugt, 2006). Another study found that the most important distinction between good and bad supervisors was the amount of help they gave to their workers, for example, in promotion decisions, sharing time and sacrificing personal interests (Konovsky, 1986), suggesting that these qualities are valued in a leader.

In experimental research, individuals who had been randomly designated as group leaders are more likely to intervene in an emergency, such as the sudden illness of a group member, (even though responding to the emergency meant violating the experimental instructions), than when they were ordinary members (Baumeister, Chesner, Senders, & Tice, 1988). Self- sacrifice by a leader has been found to engender more cooperation from their followers (De Cremer & Van Knippenberg, 2002). Chen, Lee-Chai, & Bargh, (2001) report that students who are primed with words associated with power and leadership (e.g. 'influence' or 'control') in one task, become more socially responsible and altruistic towards fellow students in subsequent tasks. Finally, Rapoport (1988) found that subjects endowed with a higher level of resources in a social dilemma game – the "rich" – contributed more to the common pool.

Anthropological research also supports the association between generosity and leadership. Reviewing the literature on hunter-gatherer societies, Boehm (1999) concludes that leaders get respect by being generous. Leaders who are stingy are sometimes simply disobeyed, replaced, or even killed by the group (Chagnon, 1997). Furthermore, altruistic allofeeding is used as a status reinforcement mechanism in Arabian Babbler birds (Zahavi, 1997).

Research Prediction

Taken together this leads to the following prediction to be examined in the two studies presented in this chapter: assigning individuals randomly to high-status positions (i.e., leaders) will increase their altruistic displays (Prediction 1). These studies also enable us to test against the alternative hypothesis that status gives a person an opportunity to free-ride with relative impunity. As De Cremer & Van Cremer & van Dijk (2005) found leaders were less altruistic than followers. And Hoffman and Spitzer (1985) show that individuals who earn a high status position in a simple bargaining game feel entitled to that role and tend to make less generous offers. To the extent that our high-status leaders feel that they are entitled to more because of their leadership position, one could make an alternative prediction that they would contribute less, rather than more, than low-status individuals.

Study 6: Does High Status induce Altruism?

The results of previous studies provide some support for the competitive altruism hypothesis. The present study extends the previous research by examining the effect of status on altruistic behaviour in a public good dilemma gave that is much the same as in Study 1. We randomly assigned participants to either a high status (group leader) or low status position (ordinary member) in their group. We expected a competitive altruism "schema" to be activated by the status manipulation such that high status members contribute more to the group fund than low status members (Prediction 1).

Method

Participants and Design

Fifty seven university students (38 females and 19 males, mean age 20.6 years) participated for course credit. Each participant was randomly allocated to one of two experimental conditions, high status (n = 27) or low status (n = 30). The experiment comprised six practice rounds and six trial rounds.

Procedure

Participants were randomly assigned to one of two experimental conditions (high status or low status). Participants were individually seated in cubicles with a computer and all instructions for the task were presented on this screen. They were led to believe that they participated in groups of four, but in reality the computer predetermined the responses of the other three members.

The public good dilemma. Participants then received instructions, informing them about the nature of the public good task. The task was essentially the same as in Study 1 with one exception: Each group member was given 300 pence, and had to decide, per round whether to invest all or nothing in the group fund.

Manipulation of status. Participants were informed that they were to play the game in leader-led groups. The group leader would inform group members about how well the group performed on the task. The leader would be arbitrarily selected from the group.

In the high-status condition, the participant was selected as group leader and was given the following information; "You have been selected as the coordinator of the group. You have the responsibility of communicating to the group how the group has performed on each of the rounds. The experimenter will inform you of the group's performance and then you will inform the rest of the group by email."

In the low-status condition, the participant was not selected as coordinator and was given the following information; "After each round you will receive an email from your group's coordinator informing you of your group's performance on that round.

Rounds. The group task contained six rounds in total. Each round required the participant to make a decision of whether or not to invest their 300 pence.

Manipulation check. After the sixth and final round, participants answered four questions to check the status manipulation (on a 7-point scale from not at all (1) to very much (7)), for example: "To what extent did you feel like a high status group member? "To what extent did you feel important in the group?"

Debriefing. At the end, participants were given a debrief information sheet and the opportunity to ask any questions. No suspicions were raised regarding the nature of the manipulations.

Results

Manipulation Check

The status items were aggregated into a single status scale, with a reliability of 0.70. The status score was subjected to a one-way ANOVA with status position as between subject factor. As expected, $F(1, 55) = 11.06$, $p < .05$, participants in the high-status condition felt they had more status ($M = 5.78$, $SD = 2.05$) than those in the low-status condition ($M = 3.15$, $SD = 1.75$). Both scores significantly differed from the scale midpoint (high-status $t(26) = 4.50$, low-status $t(29) = 4.53$; $p < .05$).

Altruism

For reasons of simplicity, we decided to regroup the six rounds into three time categories: Early (rounds one and two), middle (rounds three and four) and late (rounds five and six). A repeated measures ANOVA was conducted with Time as the within subjects factor and status position as the between subjects factor. The results show significant main effects of time $F(2, 110) = 22.17$, $p < .01$, and an interaction between status position and time $F(2,110) = 3.31$, $p < .05$. Consistent with our prediction, members in the high-status condition contributed more often, 81%, ($M = .81$, $SD = 18.89$) than in the low-status condition, 65%, ($M = .65$, $SD = 19.25$).

In addition, examination of the interaction using pairwise comparisons revealed that in the Early rounds, there was no significant difference between status conditions, $F(1, 55) = 1.15$, *ns*. In the Middle rounds this difference was marginally significant $F(1, 55) = 3.51$, $p < .06$. In the late rounds there was a clear difference between the high status and low status members in terms of the contribution percentage, $F(1, 55) = 13.83$, $p < .01$. The contribution percentage means are displayed in Figure 2.

Status

In an exploratory vein, we examined if perceived status was a mediator of the relationship between status position and altruism. Hence we followed the steps outlined in Baron and Kenny (1986). We first established that status position (the predictor) was related to altruism (the outcome) by regressing altruism on the status position variable ($b = 15.86$, $t(3.13)$, $p < .01$). To establish that group position was related to perception of status (the hypothesized mediator), we regressed status perception on the status position variable, which was also significant ($b = 1.68$, $t(3.33)$, $p < .01$). To test whether status perception was related to altruism, we

regressed altruism simultaneously on both the status perception and status position variables. This third regression provided an estimate of the relation between group

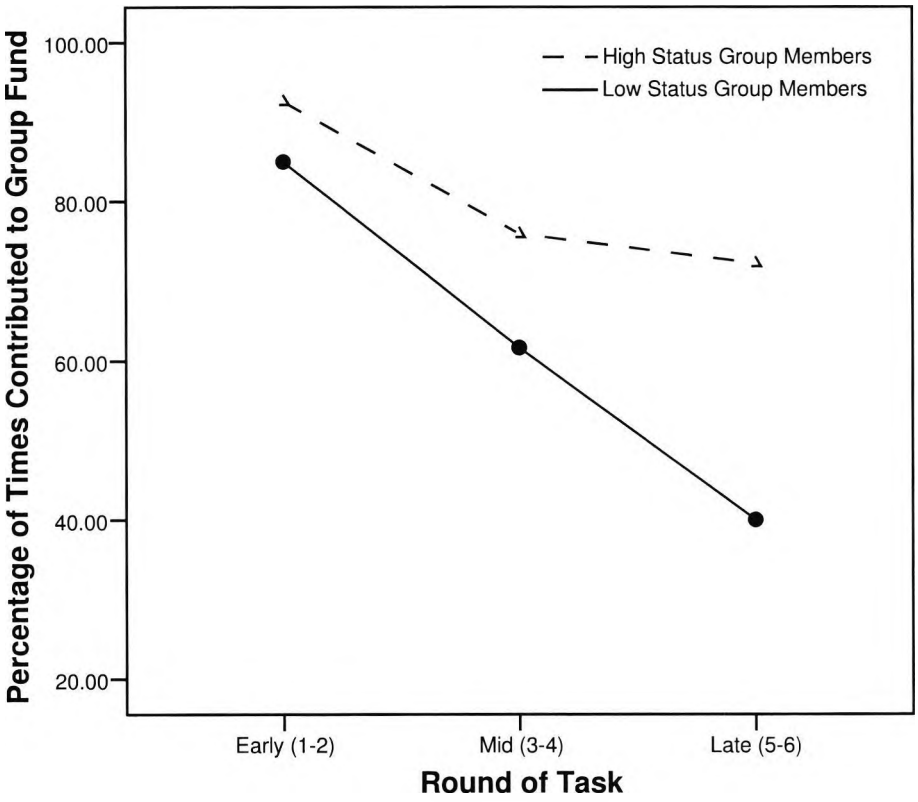

Figure 5.1. Percentage means of contributions to group fund across rounds and status position

position and altruism, controlling for perception of status (as the potential mediator). The result showed that this relationship was still significant but weakened (b = 11.59, $t(2.4)$, $p < .05$. A Sobel test concluded that this relation was significantly weakened when perception of status was added as a mediator, $z = 2.09$, $p < .05$. Thus, perceived status appeared to mediate, partly but not completely, the relationship between status position and altruism.

Study 7: Does a Change in Status affect Altruism?

Study 6 was an empirical demonstration of one consequence of high status, we found that those in a high status position contributed more highly to public goods than those in a lower status position. Study 7 aimed to investigate the consequences of status further by examining the effects of status change on behaviour.

The first aim was to re-test and extend the finding of Study 6, by looking at altruistic behaviour before and after a change in status. Secondly we looked at emotive reactions to status change. It is likely that seeking status is an adaptation as status brings a number of advantages to those that hold it. Researchers such as Goode (1978) and more recently, Marmot (2004) have argued that striving to succeed in the social hierarchy is a strong human motive. Research has shown that an individual's status has real value – that is, humans tend to prefer a higher ranking in a group to a lower ranking. This assumption is based on centuries of observations of human behaviour (e.g. Veblen, 1973). Striving to achieve status in one's social group is ubiquitous and important, as status attainment has positive consequences for the individual. An individual's status within their group positively affects; self esteem (Rosenberg and Pearlin, 1978), influence (Simonton, 1994), access to resources and opportunities (Jones and Gerard, 1967), personal health and wellbeing (Marmot, 2004), and reproductive success (Kaplan & Hill, 1985). These positive consequences of high status may explain why virtually all social animals have a preference for higher status over lower status (Wilson, 1975), why they try to protect and maintain their position and why it is likely that there will be psychological mechanisms that go with status change.

For example humans may display an acute awareness of status and psychological reactions to losing and gaining status. The second aim of the study was to investigate whether status gain and status loss had an effect of positive and negative emotions. There is some evidence in the literature for an association between status, status gain and positive mood (Gilbert, 1990). Keltner & Haidt (1999) suggest that elevated social status, whether derived from group status or experimental manipulation, relates to the experience of increased positive emotion and reduced negative emotion.

In this study, participants took part in a public goods task in two rounds where a status change (leader vs follower) was manipulated after the first task.

Three specific predictions were made, again we expected those assigned to a leader status to contribute more highly to the group fund that those assigned to follower status (Prediction 2). Those who experience a status gain (from follower to leader) will report an increase in positive emotions and will contribute more highly to the group fund following their status gain (Prediction 3a). Those who experience a loss of status (from leader to follower) will report an increase in negative emotions and will contribute less to the group fund after their status loss (Prediction 3b). Those whose status does not change throughout the experiment will act as control groups and we predict they will report no significant change in emotion and will contribute consistently to the group fund.

Method

Participants and design

Forty undergraduate students (28 female and 12 male), between ages 18 and 21 took part in the experiment. The experiment was carried out using an Authorware program. Each participant was randomly allocated to one of four experimental conditions in a 2 (Status: leader vs. follower) x 2 (Status change: change vs. same) between participants design. Within the status change condition two groups had their status reversed and two groups remained the same and thus acted as control groups.

Procedure

Participants were led into a cubicle containing a personal computer. They were instructed that they were required to wait until the other two participants had arrived in the adjoining cubicles. In reality there were no other participants.

Manipulation of initial status. At the start of the experiment, participants were informed that one member of the groups would be selected as group leader. Participants were told that their responses to a series of five questions regarding their opinions about leadership would decide who was chosen. These questions were designed to make the participant believe that their answers were being assesses in conjunction with the other group members. The questions were based on opinions of the qualities a leader should possess (see Appendix F). In reality assignment of a leader or follower status within the group was strictly random.

After completion of these questions, all participants experienced a delay for around 20 seconds in which they were made to believe the other participants were

completing their own questions. The delay was pre-programmed into the computer program.

Those assigned to groups one or three were instructed that they had been selected as most suitable to be group leader and this meant that they would be first to complete the task and that the other group members would have to wait while they were doing so. Those assigned to groups two or four were instructed that they were not the most suitable group leader and that the leadership role had been given to another member. These groups experienced a delay of 30 seconds with on screen instructions that they were waiting while the group leader completed the task. See Table 5.1 for details.

Table 5.1

Status Change Manipulation According to Assigned Status Path Condition

Status Path	Group	Initial Status (before computer message)	Final Status (after computer message)
Status Loss	1	Leader	Follower
Status Gain	2	Follower	Leader
No change (leader)	3	Leader	Leader
No change (follower)	4	Follower	Follower

After being informed of their status, participants were then asked to rate their current emotions on a 7 point scale (1 = low and 7 = high). A series of 10 similar questions were posed; for example, "How *happy* are you at this moment?" The scale measured five positive (happiness, joy, elation, respect and pride) and five negative emotions (anger, disappointment, contempt, shame and envy). The order of the positive and negative emotions were randomly presented (See Appendix G).

Participants were then presented with a public goods dilemma (essentially the same as Studies 1 and 2 whereby contributions to the group fund would be doubled and divided equally between group members and contributions to the private fund would remain the same). They were asked how much they would contribute to the group fund if they were given £100.

Manipulation of status change. After the public good task had been completed an error message appeared on their computer monitor. After a delay of 10 seconds a message appeared with the information that the computer had made an error in calculating the scores from the initial leadership questions. Participants were then informed of their current status – two groups remained the same and two groups changed. The emotion scales and the public good task were then completed again.

Dependent measures. Two questions were asked to check the status manipulation. Participants were asked to record their status both before and after the computer error.

Debriefing. After these questions had been answered participants were informed that the experiment had ended. They were given a debriefing sheet and the opportunity to ask any questions. The participants were thanked and dismissed.

Results

Effect of initial status on contribution to the group fund

There was no significant difference between leaders and followers in the initial contributions to the group fund.

Effects of status change on contribution to the group fund

A repeated measures ANOVA was conducted with contribution to the public good before and after status change as the within subjects factor and initial status and status change as the between subjects factors. The results show a significant 3-way interaction effect for contribution, initial status and status change, $F(1, 36) = 6.48$, $p<.0.05$. This interaction was examined in more detail by conducting pairwise comparisons. The results show for leaders, although a loss in status resulted a decrease in contributions made to the group fund, (from $M = 53.0$ to $M = 47.0$) this change was not significant $F(1,36) = 1.62$, *ns.* For followers, a gain in status resulted in a significant increase in contribution to the group fund (from $M = 50.0$ to $M = 64.0$), $F(1,36) = 8.82$, $p<0.01$. For those in the no status change conditions, both those assigned to leader status and those assigned to follower status made no significant changes in contribution to the group fund.

Table 5.2

Mean Contribution to the Group Fund Before and After the Status Manipulation

Status path	Mean contribution to group fund	
	Before	After
Status loss (leader to follower)	53.0_a	47.0_a
Status gain (follower to leader)	50.0_a	64.0_b
No change (leader)	46.0_a	48.0_a
No change (follower)	29.0_a	27.0_a

Means with a different subscript differ significantly from each other, $p < .05$

Effects of status change on emotions. A factor analysis was conducted on the ten questions relating to emotions before the status change. The analysis yielded evidence for two factors which together explained 91% of the variance. Happiness, pride, joy, elation and respect loaded onto one factor, which was labelled 'positive emotions' (reliability 0.83). Anger, envy, contempt, shame and disappointment loaded onto the second factor, which was labelled 'negative emotions' (reliability 0.80). A second factor analysis was conducted on the same emotion variables after the status change and in this case there was evidence for three factors which explained 76% of the variance. In this analysis the variables respect and joy loaded onto the third factor with the first two remaining the same. To ensure comprehensiveness in the analysis the variables respect and disappointment were subsequently discarded from the subsequent analysis and two factors were used which explained 73% of the variance - happiness, pride, elation and joy in the 'positive' scale (reliability = 0.89) and contempt, anger, shame and envy in the 'negative' scale (reliability = 0.78).

Effect of status change on positive emotion. A repeated measures ANOVA was conducted with positive emotion before and after status change as within subjects factor and initial status and status change as between subjects factors. The results show a significant 3-way interaction between positive emotion, initial status and change in status, $F(1, 36) = 21.82$, $p<0.01$. This interaction was examined in detail by conducting pairwise comparisons. The results show that for leaders, a loss in status resulted in a significant decrease in positive emotion, $F(1, 36) = 26.07$,

$p<0.01$. For followers, a gain in status resulted in a significant increase in positive emotions, $F(1, 36) = 18.89$, $p<0.01$. For those in the no change condition, both those assigned to leader status and those assigned to follower status showed no change in positive emotion. See table 5.3 for mean emotion scores.

Table 5.3

Mean Positive and Negative Emotion Score Before and After Status Change

Status path	Mean emotion score			
	Positive before	Positive after	Negative before	Negative after
Status loss	4.23_a	3.13_b	2.20_1	2.73_2
Status gain	3.55_a	4.55_b	1.83_1	1.35_2
No change (leader)	4.13_a	3.98_a	1.45_1	1.70_1
No change (follower)	3.60_a	3.48_a	1.63_1	1.60_1

Means with a different subscript differ significantly from each other, $p < .05$

Effects of status change on negative emotion. A repeated measures ANOVA was conducted with negative emotion before and after status change as within subjects factor and initial status and status change as between subjects factors. The results show a significant 3-way interaction of negative emotion, initial status and change in status, $F(1,36) = 4.96$, $p<0.05$. This interaction was examined in detail by conducting pairwise compaisons. The results show that for leaders, a loss in status resulted in a significant increase in negative emotion, $F(1, 36) = 10.40$, $p<0.01$. For followers, a gain in status resulted in a significant decrease in negative emotions $F(1, 36) = 8.51$, $p<0.01$. Those in the no status change conditions showed no change in negative emotion. See Table 5.3 for means.

General Discussion

Status Increases Altruism

These findings clearly demonstrated that defining people in terms of being a leader or a follower influenced their decision behaviour. In both studies those assigned to a high status position in the group contributed more to the group than

those assigned to a low status position, despite the random assignment of status positions. One way to look at this effect is to suggest that status activates a competitive altruism heuristic in which group members, consciously or subconsciously, start to contribute more to a group when they find themselves in a high status position. As Tooby and Cosmides (1996) suggest status is related to the desire to get other people to think about us in ways that ultimately benefit us. This may be especially important for high status people who are keen to maintain their privileged position in a group. By behaving altruistically high status members can strengthen their position, which might be particularly important if their position lacks a legitimate basis (as in our studies).

This finding is in line with Ostrower's (1995) research into philanthropic giving among American elites. He describes philanthropy as a competitive race among the elites in which altruistic giving elevates a family's status and the absence of giving lowers it. Most of the philanthropists Ostrower interviewed agreed that for those within their elite group philanthropy was an obligation. When someone in the elite group is thought to give too little, they are looked down on with disdain and are often criticized. It is also consistent with Berger, Cohen, Zelditch's, (1972) expectation states theory, which claims that performance expectations are associated with high status positions. Thus, when people are assigned as leaders they are expected to be generous and responsible, and these expectations are internalised. Competitive altruism may therefore not only produce status differences in groups but maintain them as well through a set of internalised beliefs and values.

Zahavi (1997) suggests two reasons why status competition should take the form of prosocial signalling rather than open aggression (as is often the case in other social species where the dominant individual often is aggressive to those who are low status). First, aggression towards group members is more costly that competitive helping because any display of aggression that is not successful is witnessed by all group members (although success is also witnesses) and any injury or weakness may be exploited by rivals that are constantly present in the group, waiting for a chance to change their rank. Second, individuals investing in the welfare of the group by undertaking costly helping behaviours are more likely to attract other individuals as collaborators. In other words, in co-operative groups, dominant individuals often need collaborators to become and remain dominant; by advertising their willingness to be generous and helpful, individuals can attract supporters, as well as mates, and

demonstrate their capacity to rally support in defence against opposition (Boone, 1998).

Status and Emotions. If, as we suggest status may be an evolutionary adaptation, it is likely that there are psychological mechanisms that go with it, such as an acute awareness of status and a sensitivity to status change. Price (1972) was among the first to link gains and losses in social conflicts and social rank to mood states, indicating that humans are indeed highly sensitive to social rank and to rank related threat. There is some evidence in the literature for associations between status, status gain and positive mood (e.g. Gilbert, 1990). Wittenbaum and Park (2001) also report that people of high status often hold the perception (whether correct or not) that they have greater proficiency and more influence than other group members. A loss of status is strongly associated with general feelings of dysphoria (Gilbert, 1990). Cheung, Gilbert and Irons (2004) report that social anxiety levels increase when people are around those of higher (actual or perceived) status, for example public speaking in front of an educated audience.

A positive mood (associated with high status) may increase the amount a person may donate to another person or group (e.g. George & Brief, 1992; Isen & Levin, 1972). Conversely, negative mood associated with low status and status loss should result in a decrease in contribution to others. This was observed in Study 7 where status loss led to a decrease in positive emotion, an increase in negative emotion and decreased altruism. Status gain led to an increase in positive emotion, a decrease in negative emotion and an increase in altruism. These results support Gilbert's (1990) finding that euphoria was associated with achievement of high status and dysphoria with a loss of status.

One perspective on the origin and function of these emotional reactions is that they reflect concerns about our identity. Identity concerns may have evolved to enable humans to cope with managing interactions with others (e.g. Tajfel & Turner, 1979). As discussed throughout this paper, humans have evolved high-level motivations to compete to be liked, approved of, and valued (Boehm, 1999). We understand that our status depends on it. However, to be successful in securing these things Gilbert (2003) argues a person must stimulate the positive emotions of others (the person must, for example, stimulate liking in a potential friend, or be seen as valued or indispensable to a group). Further, the individual must keep track of how successful he or she is (and has been) at doing this. Thus, humans try to create

advantageous roles by trying to stimulate positive feelings in the minds of others about themselves (for example, to be approved of and chosen). With approval and recognition we feel valued, included and even that we may have some influence over others. Without approval and recognition we feel (and often are) devalued, subordinated and excluded (Gilbert, 1998, 2002a). This is in line with what we found in Study 7; those who gained status felt an increase in positive emotions; those who lost status positions felt an increase in negative emotions. Gilbert (1998) also suggests a evolutionary function for these negative emotions. They possibly act as a warning signal that these individuals were not activating positive feelings in the minds of others and thus were not succeeding in the status hierarchy.

Greenwald and Harder (1998) suggested social roles are key to the dynamics of certain emotions. They suggest that the negative emotions of stigma and shame are typically focused on four key evolutionarily important roles, one of which is resource competition. The failure to compete competently for resources and/or being seen to lack the abilities to competently do so may elicit these negative emotions. In our research those individuals who were assigned to a low status may have felt that they now lacked the resources to compete for or provide resources for the group and so reported a high level of negative emotion and vice versa for those assigned to high status positions. Similarly, Akerlof and Kranton (2000) analyze the effects of identity, i.e., a person's sense of self, on economic outcomes and report that a positive identity increases contributions to public goods. Further research is needed to fully explore and integrate these findings.

Implications of Research

The competitive altruism hypothesis as it pertains to high status and altruism has an important implication. Altruism in society can be fostered by encouraging people to publicly display their generosity and by giving people status for giving (e.g. by showing them respect). For example, naming the identity of donors and revealing the amount they have given should set up a competitive altruism process in which people try to outcompete each other in their charity donations. For example, in the UK, the Beacon Awards offer recognition and public approval to those give to charity.

More specifically, results of this study suggest that fundraisers should perhaps look to start their campaigns by soliciting the wealthier, more recognized, and respected individuals in a community as they are likely to give more. A recent

study by Kumru and Vesterland (2005) reports that low-status followers are likely to mimic contributions by high-status leaders, and that this encourages high-status leaders to contribute more. Contributions are therefore larger when individuals of high status contribute before rather than after those of low status. The importance of the 'leadership phase' of fund-raising is emphasised in many handbooks for fund-raisers. For example *The Nonprofit Handbook*, recommends a pyramid strategy for fundraising in which leaders are at the pinnacle, "Leadership people are the highest echelon of prospects—the people from whom the largest gifts are possible and . . . . the people whose generosity will set the pattern for others. These are the people you approach first." It makes the specific recommendation to fund-raisers that "the lead gift should be at least 10% of the overall goal" (Lawson 2001, p. 756).

So, high status contributors can distinguish themselves not only by being wealthy, but also by being well-known and well-respected, and they can use this position for the greater good. Andreoni (2004) suggests that by giving first, high status individuals provide a signal to others that the cause is worthy. Hence the leader must give an unusually large amount to convey a credible signal of quality (both of themselves as an individual and of the charity they support). For example, Steven Spielberg made a $1.5 million donation to the Tsunami relief effort saying that while he usually kept his charity donations private he had gone public to encourage others to contribute (news.bbc.co.uk, 2005).

In conclusion, this link between altruism and status provides a new way of thinking about human sociality and has important implications for raising altruism in society.

CHAPTER 6

GLORY FOR GIVING? INVESTIGATING THE ALTRUISM-STATUS RELATIONSHIP IN THE REAL WORLD: *STUDIES 8 & 9*

Abstract

Human societies are organised around altruistic, cooperative interactions between strangers (Alexander, 1987; Dunbar, 2004; Sober & Wilson, 1998). This goes against conventional interpretations of the theory of natural selection, which is assumed to favour selfish individuals who maximize their own resources at the expense of others. Competitive altruism may provide an account for this behaviour, arguing that individuals behave altruistically for reputation reasons because selective advantages (associated with status) accrue to the generous. I present two studies that examine the status and reputation of those who engage in altruistic behaviour, for example, through contributions to public goods. Study 8 reports that high status occupations in British society are perceived to be those that involve contributing altruistically towards the community. Study 9 uses historical data and provides support for the hypothesis that altruistic contributions to three specific public goods can earn people their reputations. Results are discussed in terms of competitive altruism.

Chapter Six

Glory for Giving:
Investigating the Altruism-Status Relationship

> See? You get ahead by giving! Get with the program! Only the generous survive!
>
> Charles Stross, *Accelerando*, 2005

Humans have a propensity for altruism, for wanting to give, for hating to renege, for forgiving, for feeling indignant. Human societies are united in the way they invest time and energy in public displays of helping such as philanthropy, heroism, charity work and volunteering. For example, they help other members in their neighbourhood and make frequent donations to charity (Van Vugt, Snyder, Tyler, & Biel, 2000). They come to each other's rescue in crises and disasters (Van Vugt & Samuelson, 1999). They respond to appeals to fight for their nation during a war (Stern, 1995), and they put their lives at risk by helping complete strangers in emergencies (Becker & Eagly, 2004). Findings from experimental social dilemma research support the proposition that some people are 'natural' altruists in public goods situations. In single interactions between anonymous strangers in the laboratory, up to 40% make a personally costly cooperative move in a Prisoner's Dilemma Game (De Cremer & Van Vugt, 1999). Most experts agree that the roots of human social behaviour lie far back in the Pleistocene (beginning around 2 million years ago and ending 10,000 years ago), (Dunbar, 1993), but how can we explain *why* people would be generous to strangers?

Competitive altruism and reputation

First, it should be noted that not everyone is equally altruistic. Individuals differ in their ability and willingness to incur personal costs to help others (Kurzban & Houser, 2005). Altruism appears to violate the expectations of rational choice and evolutionary theory (Darwin 1859; Olson 1965), because altruism is costlier than selfishness. Competitive altruism theory (Roberts, 1998; Van Vugt, Roberts, & Hardy, 2007), the idea that in certain environments people compete to be generous, provides one explanation for human altruism. In this theory, the costs of altruism may be offset by the benefits of having a good reputation and high social status. The benefits associated with status create pressures on people to behave altruistically, resulting in enhanced levels of cooperation across society.

The altruism-status relationship has been documented in anthropological research on the prestige of successful hunters (Smith & Bliege Bird, 2000; Hawkes 1993), warriors (Chagnon, 1988; Patton, 2000), and volunteers for public duties (Price, 2003). Laboratory research (Hardy & Van Vugt, 2006) shows that individuals who contribute more to public goods receive more status and are more likely to be selected as group leaders. Human societies also offer rewards for altruists in the form of awards, statues and medals (Levine & Moreland, 2002). Pinker (1997) points out that status and virtue are close in people's minds (as seen in the use of words like *classy*, *honourable*, and *princely*). Reputation effects could be the "selective incentive" (Olson 1965) that motivates certain individuals to do good for society. But why should groups reward altruists with status?

One explanation comes from costly signalling theory (Zahavi & Zahavi, 1997). According to this theory, the high status of altruists is due to their attractiveness as potential allies or mates (Boone, 1998; Miller, 2001). Altruism may indicate some desirable underlying quality that is costly to obtain and therefore hard to fake, such as genetic endowment, health and vigour, or resource control (Smith & Bliege Bird, 2000; Sosis, 2000), which enhances the status of those who possess such traits. Another explanation is derived from indirect reciprocity theory (Alexander, 1987). This theory assumes that altruists are sometimes *rewarded* by the community as a whole. Groups compensate altruists by giving them prestige because by doing so, they can continue to benefit from the presence of these individuals in their community.

Contributing to public goods might be a particularly good strategy to develop an altruistic reputation. First, contribution to a public good is by definition costly to the actor. Second, contributing to a public good has the potential to attract a large audience of interested observers who all benefit if the good is provided, thus public goods provide convenient "broadcast opportunities" to widely advertise ones' possession of desirable qualities (this advertisement may be enhanced through gossip, Dunbar, 2004). Third, observers can easily compare among several contributors, which helps in making inferences about the underlying quality of the contributors and provides a competitive environment for those involved (Henrich & Gil-White, 2001).

Competitive altruism theory assumes that the costs incurred by altruists are recouped through gaining non-material benefits such as status and prestige that may

yield long-term profits in terms of reproductive success (Van Vugt, Roberts, & Hardy, 2007). The idea that altruism brings prestige, which is at the heart of competitive altruism theory, will be tested in the present research.

The present research

We propose that altruism in terms of contributing to a public good is a key feature of the status hierarchy in human groups. In which arenas would we expect to see this altruism-status relationship? For what types of altruistic behaviour would we expect individuals to be rewarded with status? From researching historical and evolutionary literature we have identified three potential candidates: 1) *group defence* – those who are willing to fight for the group and lead them to victory, e.g. military leaders, (Alexander, 1987), 2) *group cohesion* – those who save lives or maintain social harmony in groups, e.g. doctors and police officers (Kurzban & Leary, 2001), and 3) *innovation* – those who create new resource opportunities for others, e.g. scientists and engineers (Pinker, 1997)[1].

There is considerable empirical and historical evidence for the importance of these status domains (Kenny & Zaccaro, 1983; Simonton, 1994; Stogdill, 1974). The military, religion, science and entertainment are unique features of human society, and in all of these domains, high quality individuals can signal their resourcefulness and ability through contributing to public goods that, once made available, are free for all to use and consume. For example, once 19th century engineer Brunel had invented the design to build steam ships, this knowledge and subsequent developments could be used by anyone.

Similarly, Levine & Moreland have argued that groups compete for three basic needs: 1) for 'truth' – which means that groups are motivated to find shared beliefs or to provide a shared reality. This is important as it helps to maintain the group and increase group consensus; 2) for resources which improves the skills the group has and 3) for status which helps the identity of the group (Levine &

[1] There may be debate over whether these categories are true public goods. By definition a public good is 1) Non-rivalrous - its benefits fail to exhibit consumption scarcity; once it has been produced, everyone can benefit from it without diminishing other's enjoyment and 2) Non-excludable - once it has been created, it is very difficult, if not impossible, to prevent access to the good. Group defence, order and law enforcement, and knowledge and information are commonly recognised as true public goods (Davis & Holt, 1993).

Moreland, 2001). These three needs are similar to the public goods we are interested in researching.

These goods are also included in Trivers' (1971) definitions of altruistic behaviours: (1) caring for sick, disabled or otherwise incompetent individuals, (2) sharing knowledge, (3) food and tool sharing, and (4) helping in times of danger. Individuals who make a major contribution to provide these goods are valued, because these goods are costly for individuals to provide; hence, providing them may be a strong signal of a very important underlying quality (such as strength, intelligence, or a co-operative nature). Furthermore, the providers of these goods offer solutions to major public goods dilemmas groups face, enabling individuals in the group to survive and prosper, relative to other groups (Alexander, 1987; Sober & Wilson, 1998).

Our first study explores the altruism-status relationship in 23 contemporary occupations in Britain, which were evaluated in terms of their status and benefit to society (these occupations were derived from the Harris Poll of Occupations, 2005). We predict that high status will be positively associated with a perceived high level of contribution to society (Hypothesis 1). We also expect to find that the highest status members of society are those whose occupations are most likely to benefit the many rather than some (i.e. those who are perceived to contribute to a public good versus those who do not) (Hypothesis 2). Finally, in an exploratory vein, we examine the support for the proposed three-category public goods classification (group defence, group cohesion, innovation) within the status ratings of these occupations.

The second study concentrates specifically on the types of goods that may earn altruists their reputations. Using historical data of high status British people (the 100 nominees from the Great Britons poll; Cooper, 2002), we first explore whether the three public goods categories (group defence, group cohesion, innovation) are a good way to describe the achievements of the top 100 Greatest Britons. A secondary aim is to explore if there are any status differences between individuals contributing to each of these goods and to explore potential sex differences in the results.

Study 8: Altruism-Status Relationship in Occupations

Method

Participants.

Fifty participants between ages 19 and 45 years took part in the study. Participants were recruited randomly from the University of Kent. The mean age of the sample was 19.4 years (SD = 1.4, range 18-26 years).

Materials.

Participants completed a questionnaire designed to assess status perceptions of 23 occupations. These occupations were derived from the US-based Harris Poll (2005), an annual poll (since 1977) that is refined each year to ensure a representative cross-section of occupations. The terminology of two occupations were modified slightly to make the terms more relevant to the UK (for example, 'real estate agent' was rephrased 'estate agent') and the occupation 'royal family' was added. The questionnaire was composed of three items: Item 1: "The following is a list of a number of different occupations. For each, would you decide if you feel it is an occupation of very great status (1), considerable status (2), some status (3) or hardly any status at all (4)?" Item 2: ""The following is a list of a number of different occupations. For each, would you decide if you feel it is an occupation that contributes very greatly to society (1), contributes considerably to society (2), contributes somewhat to society (3) or contributes hardly at all (4)?" Item 3: "For the same list, please rate each occupation on how much you perceive it to contribute to the each of 3 public goods from, "contributes greatly (1)" contributes very much (2), contributes slightly (3) to "not at all (4)". The public goods were described as follows:

1) *group defence* – those who are willing to fight for the group and lead them to victory, e.g. military leaders

2) *group cohesion* – those who save lives or maintain social harmony in groups, e.g. doctors and police officers.

3) *innovation* – those who create new resource opportunities for others, e.g. scientists and engineers

Participants were also given the opportunity to write in any other 'good' they thought each occupation might contribute to.

Procedure.

Participants were approached by the experimenter as they were entering or leaving the library. They were asked to answer the three questions for each occupation.

Results

Status-altruism correlation - Are altruistic occupations higher status?

Firstly, examination of the frequency distribution of the data reveals that three occupations are perceived to have "very great" status by at least half of all those surveyed – doctors (60%), firefighters (50%), and scientists (50%). They are followed by four professions that are perceived to have "very great" status by 40 percent or more but less than 50 percent – teachers (48%), military officers (46%), nurses (44%), and police officers (40%). See Table 6.1.

To examine this further each status rating was valued from 1 (very great status) to 4 (hardly any status at all) and the mean status scores were calculated for each occupation. Mean altruism scores (from question 2) were calculated in the same way. See Table 6.1. In line with Hypothesis 1, across occupations, there is a positive and significant correlation between the perceived status and altruism (contribution to society) of the occupations, $r = .82$, $p<.01$. Those who were perceived to contribute more to society, had higher status. See Figure 6.1

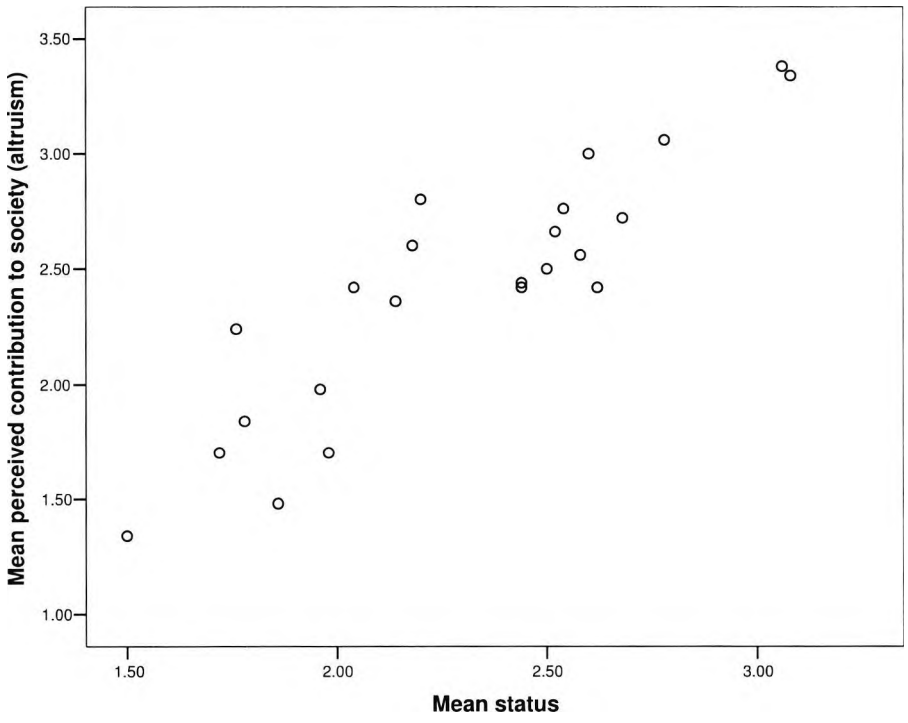

Figure 6.1. Plot of Status – Altruism correlation

Table 6.1

Descriptive Data for Status and Altruism of Occupations

Occupation	Rank	% Frequency of Response				Mean Status	Mean Altruism
		Very Great Status	Consider-able Status	Some Status	Hardly any Status		
Doctor	1	60	30	10	0	1.50	1.34
Firefighter	2	50	32	14	4	1.72	1.70
Scientist	3	50	30	14	6	1.76	2.24
Teacher	4	48	20	18	14	1.98	1.70
Military Officer	5	46	34	16	4	1.78	1.84
Nurse	6	44	34	14	8	1.86	1.48
Police Officer	7	40	32	20	8	1.96	1.98
Royal Family	8	32	34	16	18	2.20	2.80
Priest / Minister	9	32	30	30	8	2.14	2.36
Member of Parliament	10	32	28	30	10	2.18	2.60
Engineer	11	30	42	22	6	2.04	2.42
Entertainer	12	22	24	24	30	2.62	2.42
Actor	13	20	28	40	12	2.44	2.44
Athlete	14	20	26	38	16	2.50	2.50
Business Executive	15	18	30	42	10	2.44	2.42
Lawyer	16	16	30	40	14	2.52	2.66
Journalist	17	14	32	40	14	2.54	2.76
Architect	18	14	30	38	18	2.60	2.56
Banker	19	14	28	44	14	2.58	2.56
Union Leader	20	10	24	44	22	2.78	3.06
Accountant	21	8	34	40	18	2.68	2.72
Estate Agent	22	8	16	38	38	3.06	3.38
Stock Broker	23	8	20	28	44	3.08	3.34

Hypothesis 2 predicted that participants would rate occupations that fall into one of the three 'public goods' categories specifically, as higher status than other occupations. To determine whether occupations were contributing to a 'public good' or not we used responses to the third question in which participants rated each occupation for contribution to the three public goods on a 1- 4 scale. Table 6.2

shows public good contribution mean scores for each occupation and their subsequently assigned category (the highest score for each occupation was taken as their main public good category – some scored 4 (contributes not at all) for all categories and so were not deemed not to be contributing to any public good). Those who scored 3 (contributes slightly) were included in this initial analysis. A univariate ANOVA showed that the mean status scores of these 'public good' occupations was significantly higher ($M = 2.12$) than the scores of the other occupations ($M = 2.71$), $F(1, 22) = 15.06$, $p<.01$.

Table 6.2

Mean Scores for Public Good Categories and Assigned Category

	Mean Scores for public good			Assigned Category
	Defence	Cohesion	Innovation	
Doctor*	3.75	1.21	3.80	Cohesion
Firefighter*	3.30	1.31	2.0	Cohesion
Scientist*	3.12	2.54	1.15	Innovation
Teacher*	3.87	2.00	1.82	Innovation
Military Officer*	1.61	3.43	3.63	Victory
Nurse*	4.00	1.98	3.78	Cohesion
Police Officer*	4.00	1.90	4.00	Cohesion
Royal Family*	3.50	2.45	4.00	Cohesion
Priest / Minister*	3.92	2.58	3.85	Cohesion
Member of Parliament*	2.82	3.26	3.09	Victory
Engineer*	3.00	4.00	2.20	Innovation
Entertainer	4.00	3.44	4.00	Cohesion
Actor	4.00	3.51	4.00	Cohesion
Athlete	2.80	3.50	4.00	Victory
Business Executive	4.00	4.00	4.00	None
Lawyer	4.00	4.00	4.00	None
Journalist	4.00	4.00	4.00	None
Architect	4.00	4.00	3.15	Innovation
Banker	4.00	4.00	4.00	None
Union Leader	4.00	4.00	4.00	None
Accountant	4.00	4.00	4.00	None
Estate Agent	4.00	4.00	4.00	None
Stock Broker	4.00	4.00	4.00	None

* these occupations were the top eleven used in the subsequent analysis

Further exploration of the data suggests that the top eleven public good occupations (those who had the highest scores of 1 or 2 for their category - those who contributed very much or considerably) are; doctor (*Mstatus* =1.50), firefighter (*Mstatus* = 1.72), scientist (*Mstatus* = 1.76), military officer (*Mstatus* = 1.78), nurse (*Mstatus* = 1.86), police officer (*Mstatus* = 1.96), teacher (*Mstatus* = 1.98), engineer (*Mstatus* = 2.04), priest (*Mstatus* = 2.14), member of parliament (*Mstatus* = 2.18) and the Royal Family (*Mstatus* = 2.20). The mean status scores of these occupations were significantly higher (M = 1.86) than the scores of the other occupations (M = 2.58), $F(1, 22) = 47.86$, $p<.01$. Within this group, Bonferroni pairwise comparisons revealed that there were no significant differences between the status scores (all $p>.05$).

Again examining these top eleven, seven occupations fall into the group cohesion category (doctor, firefighter, nurse, police officer, priest, royal family and member of parliament), three into the innovation category (scientist, teacher and engineer) and one into group defence (military officer). A chi square test reveals that these frequency differences are not significant χ^2 (2, N = 10) = 3.8, ns. So for the top ten occupations, it did not make a difference which public good they contributed to, just that those who contribute to a public good gained higher status.

Other Benefits to Altruists

In an exploratory vein I looked at one other potential benefit to altruists, namely wealth, as this is often associated (at least in people's perceptions) as being related to status. Taking income data for all the occupations (with the exception of the royal family, actor, athlete and union leader as this data was not available in the same format) from the *Annual Survey of Hour and Earnings – Office of National Statistics*, (see Appendix G) I looked for a correlation with the status ratings from our dataset. Results indicate no correlation between these variables, r = .28, $p>.05$, which suggests that altruist are not simply rewarded with money. Future investigations into how they are rewarded (what long term benefits come through higher status) may be worthwhile.

Summary

Study 8 provided initial support for the proposed three-category public goods classification within the status ratings of a range of occupations. Those whose occupation contributed to a public good gained higher status ratings than other occupations.

Study 9: Which Public Goods Earn Altruists their Reputation?

Study 9 concentrates specifically on the types of goods that may earn altruists their reputations using historical data to explore whether the three public goods categories (group defence, group cohesion, innovation) are a good way to describe the achievements of the top 100 Greatest Britons. Secondary aims are to explore if there are any status differences between individuals contributing to each of these goods – so, is one good valued more than others?; to explore potential sex differences in the results; and to look at living/deceased of the data - do people grant status to living or to deceased people? This may be relevant to competitive altruism if as we suggest one long-term benefit of altruism is status – if someone is deceased – why would people grant status to them?

Method

Dataset.

The BBC's nationwide poll to find the 'Greatest Briton of all time' provided the data set from which to explore the public goods we predicted to be involved in the competitive altruism / status relationship (See Appendix H). The poll aimed to explore what makes certain individual's achievements valued and memorable where others are not, which is in line with our ideas about why some people gain reputations and status for their actions and others do not; Secondly, the poll allowed nominations across gender, century and 'arena' thus providing the opportunity for a wide range of individuals to be nominated and allowing our hypotheses to be tested across these dimensions.

The poll for nominations for Great Britons ran between 27th November and 31st December 2001. The BBC launched a publicity campaign and ran a series of trails asking people to nominate their greatest Briton of all time. A great Briton was defined as anyone who was born or who lived in the British Isles, including Ireland and who has played a significant part in the life of the British Isles. The public were able to vote either online through the BBC website or by telephone. Mechanisms were set up to identify and dismiss any attempts by individuals or organizations to cast multiple votes (Cooper, 2002). Over 30,000 people responded to the poll. The results were collated and from this the top 100 list was devised. The BBC book,

Great Britons (Cooper, 2002) provided a complete list of the 100 nominees in rank order and was used to provide the data for this study.

Participants.

Thirty five participants between ages 19 and 45 years took part in the study. Participants were recruited randomly from the University of Kent and paid £5 each for participation. The mean age of the sample was 20.4 years (SD = 1.4, range 18-26 years).

Procedure.

Participants rated each of the 100 nominees for their perceived contribution to each of the three public goods categories according to their main contribution to society. These categories were described in exactly the same way as in Study 8. Also, as in Study 8 participants were also able to record any other categories they thought were relevant.

Results

Public Goods Categories.

As in Study 8, the list of nominees was rated for their perceived contribution to the 3 public goods. The highest score an individual received for a category was used as the category that this individual was perceived to fit into. Table 6.3 shows the Top 10 and their categories according to their contribution.

Table 6.3

The Top 10 'Great Britons' and their Public Good Contribution

Position	Great Briton	Greatest Achievement / Fame	Public good category
1	Sir Winston Churchill	Prime minister 1940 – lead Britain to victory in WW2.	Group defence
2	Isambard Kingdom Brunel	Civil Engineer - design of ocean going ships	Innovation
3	Diana, Princess of Wales	The 'Peoples Princess' – charity worker and campaigner	Group cohesion
4	Charles Darwin	Originator of the theory of evolution by natural selection	Innovation
5	William Shakespeare	Dramatist and poet	Group cohesion
6	Horatio Nelson	Victories in France. Lost an eye during war in Corsica	Group defence
7	Elizabeth I	Reign hailed a "golden age". Establishment of Church of England.	Group cohesion
8	Isaac Newton	Defeat of Spanish Armada Originator of theory of gravity	Innovation
9	John Lennon	Pop star – "music for the	Group cohesion
10	Oliver Cromwell	people". Working class hero Revolutionary. Victory in English civil war. President of England's only republican government	Group defence

A chi squared analysis revealed that overall, each public good category was represented equally frequently within the complete dataset, χ^2 (2, N = 100) = .98, ns, indicating relevance of each for earning a reputation. Table 6.4 shows the percentage frequency descriptions for the data.

Status differences between the public good categories.

To explore if there were any status differences between individuals contributing to each of these goods, the rank score of each category was calculated by adding together the rankings of each person allocated to a particular category and dividing by *n*. A lower score represented a higher ranking in the table. The rank order of the data revealed that those in the group defence category were ranked highest, followed by those providing innovation and finally group cohesion, χ^2 (2, N = 100) = 116.03, p<.01. See Table 6.4.

Table 6.4

Descriptive Information and Rank scores for the Great Britons Categories

Public good	%	% male	% female	Alive	Dead	Rank score
Group defence	29	89	11	14	86	46.68
Innovation	37	81	19	13	81	48.00
Group cohesion	34	94	6	40	60	56.47
Total Frequency	100	87	13	23	77	

*nb a lower rank score signifies a higher ranking

Sex differences.

In an exploratory vein we examined sex difference in the data and report that more men (M = 87) than women (M = 13) were represented in the list χ^2 (1, N = 100) = 54.76, p<.05. A chi squared analysis revealed that males and females were equally frequently represented within each of the categories, χ^2 (2, N = 100) = 1.882; ns.

Living / Dead differences.

Again in an exploratory vein we examined possible living/dead differences in the data. We found that there were significantly more deceased nominees (M = 77) than living nominees (M = 23), χ^2 (1, N = 100) = 29.1, p<.05. Within the living/dead distinction a chi squared analysis revealed that for the living, the group cohesion category was represented significantly more than the other two χ^2 (2, N = 33) = 7.91; p<0.05. For the dead, there were no significant differences between the categories, χ^2 (2, N = 77) = 2.52; ns.

General Discussion

In both studies we found support for several predictions derived from the competitive altruism hypothesis. Here we interpret the main research findings in light of this novel idea, and discuss some implications from this research.

Competition to Provide Public Goods

To explain how altruism in human groups might have come about, we argued that people sometimes compete with each other in terms of generosity, because being seen as an altruist might produce long-term benefits. We proposed that these long-term benefits may arise via social status, and Study 8 supported the finding that the more altruistic occupations (e.g., doctors) are seen as high status.

What kinds of contributions could earn altruists their status? Our findings clearly show that group members who have high social status (such as those who have been nominated in the Great Britons poll) are those who contribute specifically to three kinds of public goods; group defence, group cohesion and innovation. Similarly contemporary members of the public who are viewed as high status are those whose occupations contribute highly to society (such as doctors, scientists, and military officers). The three categories were equally frequently represented in the 100 Great Britons data, which suggests their importance in modern human history.

This data can be interpreted in an evolutionary framework. In the Environment of Evolutionary Adaptedness, group members who provided a solution to the many problems of group living (such as conflict over scarce resources, provision of shelter, or innovation e.g. development of new tools / tool use), thus benefiting the group, would have been given prestige and esteem by others. The status literature points out that status is a multi-faceted concept (Berger, Cohen & Zelditch, 1972), and our results reflect this. Groups have different needs at different times and it is likely that different people are required to successfully provide different goods. Furthermore, status also gives performance obligations and if a high status person stops providing the good, he will likely be undermined and deposed, leaving someone else to rise into the role. Thus what is valued at a particular time can and does change often and this could explain the prominence of the different public goods categories. It should be noted that although we have shown these three goods to be important, they may not comprise an exhaustive list. Other aspects of human culture, such as the arts, may also have a basis in competitive altruism. Similarly, although in this research we allocated achievements / occupations into

one public good category, it is possible (and probable) that the categories are not mutually exclusive, and that individual's contributions would overlap categories (for example, the Royal Family could be seen to have contributed to group defence and group cohesion).

In terms of the long term rewards for altruism, the literature suggests that many benefits accrue to those who occupy high status positions in society, such as power, wealth, better health, a more positive mood, higher self-esteem, and reduced stress levels (Bass, 1990; Keltner, Gruenfeld & Anderson, 2003; Marmot, 2004; Van Vugt, 2006). We were not able to measure these long-term beneficial effects in any detail in our studies, but a preliminary look at income data suggests that those with high status are not necessarily rewarded with wealth. Indeed many of the perceived high status occupations (by way of their perceived altruism) such as nurse and police officer are sometimes perceived to be low status (due to their poor pay) so it may be important for follow up studies to examine in more detail the long-term consequences of altruism by exploring other benefits as suggested above.

Which public good earns altruists the best reputation?

To earn a reputation and gain social status, an individual must often incur a personal cost to provide a benefit to others. Perhaps this is most obviously demonstrated by risking ones' life and / or fighting to defend one's country. In support of this idea, those who contributed to the public good of group victory gained the highest rankings and the number one great Briton, Winston Churchill, came into this category. Helping in times of danger, such as by participating in military defence and offence may serve as a display of underlying qualities useful for status competition within one's group - qualities that are valued by prospective allies and deferred to by prospective competitors. The evidence that military contribution and self-sacrificial bravery is a primary avenue to male status enhancement in small-scale societies is substantial (Chagnon 1990; Otterbein, 1970). This finding is also in line with Simonton's (1994) report that the U.S. presidents who are most remembered are those who were in the public eye during a war or similar situation where one country is in conflict with another. Similarly, De Cremer & Van Vugt (2002) found that leadership is most likely to emerge when the existence of the group is being threatened by rival groups. Military officers were also ranked amongst the top 4 high status occupations. (Although doctors came the

highest, post hoc analysis revealed that doctors did not score significantly higher than military officers ($t(49) = 1.9$, ns).

Sex differences

Men were represented in the Great Britons list significantly more frequently than women. One explanation for this is from evolutionary theory, which predicts that status striving is more prominent in men than women because status is more important to them - females use status as a cue for mate selection (Miller, 2001). In a cross-cultural study, Buss (2004) found that women value prospective male suitors on a range of characteristics related to resource potential: good financial prospects, ambition, industriousness, older age, and emotional maturity – and these are gauged by status. Thus, females select for males with higher social status and access to resources, ones who could successfully provide for them and their developing offspring. Status is related to reproductive success for males (Smith & Bliege Bird, 2000), although in modern societies in which polygyny is socially restricted; status does not have the same reproductive benefits as it once did (Peruse, 1993). This does not mean that status competition doesn't have an evolutionary history in males. In support of this, research has found that, across many species, status hierarchies form more quickly in groups of males than groups of females (Buss, 2004) and boys do this much more than girls in natural play and social activities (Geary, Byrd-Craven, Hoard, Vigil & Numtee, 2003; Savin-Williams, 1987). If men strive for status more than women do, it follows that they may more frequently want to be in a position to contribute to public goods, which may explain their prominence in our dataset.

Living / Deceased?

The fact that relatively few of the members (23%) of the list are living today may reflect the observation that prestige or greatness is usually granted posthumously (Simonton, 1994). Maybe we are less willing to grant prestige to those who are alive today, because they still have a chance to make a mistake and fall from grace (for example, the boxer Mike Tyson). If we have staked our own reputation by supporting them, it could potentially be damaging to us – therefore it is safer to esteem those who have died. It is also possible that esteem after death is related to the fact that the deceased are no longer competing – thus rivals no longer need to withhold some due esteem. However this begs the question what is the point of esteem given posthumously? Does the status still reap rewards for those who

attain it? Perhaps the benefits accrue to the kin of the deceased. These are simply speculations that could be explored further.

Limitations and Implications of Research

It has been suggested that explaining altruism through status seeking may lead to a second order public goods problem (Barclay, 2006); rewarding someone for being altruistic is in itself altruistic and those who do not confer status to altruists may ultimately fare better than those who do. Evoking a competitive altruism explanation for the status-altruism relationship does not require altruists to be rewarded in such a directly reciprocal manner as altruistic behaviour may serve as a signal of individual quality and the altruist may benefit not through receiving altruistic acts either directly or indirectly, but in other ways, such as increasing its mating opportunities. So long as altruists eventually benefit in the long term, then it does not matter if altruism is not reciprocated directly by the recipient. A potential problem with this scenario is that an individual might cheat by securing a reputation and then defecting. One answer is that this potentially is not a problem if the reputation gained is continually tested and if individuals can have the opportunity to award status to someone else instead.

The positive correlations between altruism and status in this chapter are interpreted as support for the competitive altruism hypothesis. But it should be noted that correlation data doesn't imply causation – and we are not arguing that people are consciously altruistic to get status. Indeed the hypothesis would argue that people may be valued for their good deeds without this admiration being the primary object of the individual who does them and there evidence that suggests that people are often not aware of *why* they behave in certain ways (Bargh & Chartrand, 1999).

These findings are based on examination of data relating only to British persons. Future research should address these proposed public goods categories with international datasets.

The competitive altruism hypothesis has various implications for theory and practice. A first implication is that it provides a rationale for why altruists might ultimately be better off than non-altruists in society. There has been much scientific debate about whether "nice guys finish first or last" (Axelrod, 1984; Dawkins, 1976). Our research is in line with the suggestion that niceness pays because in a competitive market for interaction partners, altruists seem gaining higher status for

themselves than selfish people (although it remains to be seen whether this high status would confer other benefits such as increased opportunities).

Research into competitive altruism also helps to dispel the belief that financial rewards are what may attract people to give to their community. For example, in Britain blood is given free of charge. Donors are proud to be known as altruistic people and neither expect nor receive payment. There is rarely a shortage and the blood is high quality as only the healthiest people donate. A few years ago there was talk about selling blood to make money for a new blood donor service. Immediately there was outrage and people didn't want to give blood anymore, even though the money was to go back into the blood donor service. People felt it was no longer a gift-relationship, a contribution to a public good (Beal & Aken, 1992). As soon as it became a matter of money changing hands, blood donating became a different sort of act (see crowding out hypothesis, Andreoni, 1993; also intrinsic motivation, Deci & Ryan, 1985). Improving our understanding of people's natural competitiveness and the idea that unselfish behaviour may respond to the same competitive urges that drive selfish behaviour, may enable others to exploit it to induce altruism and generosity. Ultimately, this is good for society.

CHAPTER 7

SUMMARY AND CONCLUSIONS

This final chapter has three sections structured to draw out the key aspects of this thesis. In the first section, results relating to each of the major research predictions will be summarised and reviewed and methodological considerations will be discussed. In the second section the theoretical basis of competitive altruism will be discussed with reference to its relationship to alternative explanations, and the theory's limitations and boundaries. Ideas for future research are proposed and implications of these findings at an applied level will be discussed. Finally, an evolutionary trajectory for competitive altruism is suggested.

I. Summary of Research Findings

Competitive altruism is the process by which altruistic behaviour, if publicly displayed, increases the reputation and status of the altruist. This makes it more likely they are chosen as an interaction partner or ally, or more likely to be helped in future interactions. Through gaining an altruistic reputation, altruists gain benefits that are not available to non-altruists. Thus, reputation effects could be the "selective incentive" (Olson 1965) that motivates certain individuals to do good for society.

Table 7.1 shows a summary of the main predictions that were tested in this thesis. Here I briefly summarise the evidence presented in the empirical chapters:

1. Altruism must be costly – i.e. people will engage in costly altruism towards a public good with no direct return.

The first prediction from competitive altruism is that altruism must be costly in the short term. Competitive altruism asserts that people need not always get a direct return from their investment in altruism so long as they ultimately benefit in the long term. In Chapter 2, I reviewed a range of evidence that suggests that people are willing to engage in costly behaviour that benefits a public good with no expectation of a return. Throughout this thesis I explicitly tested this prediction and

Table 7.1

Summary of Predictions

Main Predictions	Chapter	Method
1. People will engage in costly altruism towards a public good. (There will be individual differences)	3, 4, 6	Public Goods Game (PGG) / Resource Dilemma
2. When behaviour is observable to others, individuals will compete to be the most altruistic	3 & 4	PGG / Resource Dilemma
3. There must be long term benefits to altruists:	3	PGG and Dictator Game
a) Altruists will gain higher status, but only in public conditions and not in private		
b) Altruists will be chosen as group leaders	3	
c) Altruists will be chosen as future interaction Partners	3	
d) Altruists will benefit in subsequent games	3	
4. Altruism must be a reliable indicator of some quality.		PGG, IQ and Big 5 questionnaire
5a). In a reputation environment, people contribute when their donation is wasted -- for example, the good has already been provided	4	PGG with provision point
b) These wasted contributions increase the status and prestige of donors.	4	
6. High status individuals will be more altruistic than low status individuals.	5	PGG
7. Altruism in real world – importance of public goods.	6	Questionnaire and historical data

presented evidence to support it. For example, in Chapter 3, it was confirmed in the first two experiments when the most altruistic group members earned the least in the games, either because they contributed relatively more to the group fund (Study 1) or they took relatively less from a common resource (Study 2). Thus, there are significant short-term costs associated with altruism that might prevent opportunists from engaging in such actions.

2. When behaviour is observable, individuals will compete to be the most generous.

The competitive altruism hypothesis predicts that people should be more generous in a public setting where they have a chance to earn a reputation than in a private situation. In support of this prediction, in Chapter 3 I found that group contributions increased in the experiments when people knew that their decisions were monitored by others. Furthermore, only in the reputation condition was there a correlation between giving and status. Similarly in Chapter 4, individuals were more generous in a reputation condition when they had the opportunity to benefit (in terms of reputation) from their behaviour. Thus the public nature of the situation provides a good opportunity to advertise one's generosity (Henrich & Gil-White, 2001). This implies that people should show a preference for showing altruism in situations that facilitate such broadcast opportunities, and the provision of public goods is certainly one such domain (Smith & Bliege Bird, 2000).

3. There must be long-term benefits to altruists: Altruists will gain higher status, (but only in public conditions and not in private); they will be chosen as group leaders and future interaction partners; they will benefit in future interactions.

For competitive altruism to evolve there must be compensating benefits for altruists in the long run. Of course, people need not be aware of these benefits when they make their initial decisions and in our experiments there is no reason to assume that people knew about these long-term benefits. One way I tried to tap into these long-term benefits was by examining the status consequences of altruism. The findings in Chapter 3 unequivocally show that altruistic group members received more status. In addition they were more respected, held in higher esteem, and were

more likely to be chosen as group leaders. In Chapter 6, Study 8 also supported this prediction as more altruistic occupations (e.g., doctors) are seen as high status.

In two studies I found that altruists were preferred as exchange partners in a follow-up investment task in which they could earn extra money. These results were not the result of a generalized halo effect, because there was no evidence that altruists were generally better liked. This suggests that altruism pays in the long run because it provides opportunities unavailable to non-altruists such as access to resources and coalitions.

Finally, study 3 (Chapter 3) showed that as the costs of altruism rose the status benefits also increased. In addition those who incurred the greatest cost received the most back in a subsequent game, suggesting that one potential benefit to altruists may be that others are more willing to aid them.

4. Altruism must be a reliable indicator of some quality

A fourth prediction from the competitive altruism hypothesis is that altruism must be a reliable indicator of some underlying personality trait or quality. Not everyone can afford to be generous all the time - only those who are high quality can afford to do so (Zahavi & Zahavi, 1997). What could altruism signal? In Chapter 2, I presented evidence to suggest that various aspects of personality or high intelligence may be one possible quality. Although this was not a primary area of research for this thesis, I did include a personality test and an IQ test as part of the experiment in Chapter 3. I found no evidence that altruists are more intelligent (as measured by an intelligence test) than non-altruists. This was in contrast to the research by Millet & Dewitte (2006) who reported that such a relationship does exist. This is clearly an area for future research to address. In Study 2, I looked for possible personality differences between altruists and non-altruists and found that altruists scored higher on extraversion and lower on neuroticism than non-altruists. Personality has been linked to mate choice and general relationship success so aspects of personality may be an important quality to signal. There is good empirical evidence that internal personality traits are the most valued characteristics in a mate and that these equate to a desire for a mate high in agreeableness and extraversion, openness to experience and low in neuroticism (Buss and Barnes 1986; Goodwin 1990; Kenrick, Groth, Trost & Sadalla, 1993; Sprecher and Regan 2002). So altruism might signal sociality (and agreeableness).

I also made some suggestions based on the fact that altruists were preferred as interaction partners. This is not surprising because people who are cooperative are generally viewed as more desirable group members (Moreland & Levine, 1982). Thus, altruism might be an indication of being a committed and resourceful group member, which is important for most working groups. Second, my findings show that altruists were preferred as group leaders, suggesting that people might attribute leader-like attributes to altruists. In sum, people who display altruistic actions might be seen as possessing a broad class of desirable traits and qualities. Further research could aim specifically to address if 'receivers' do actually perceive altruists to be higher on certain qualities – i.e. is a signal being sent and received?

Of course there is a difference between mate choice and choice for a coalition partner. Altruism might signal different things depending on the goals of the signaller and the receiver. This thesis has not looked at signalling in relation to mate choice; this is clearly and area for future research.

5. a) In a reputation environment, people even contribute when their donation is wasted -- for example, the good has already been provided; b) this wasted altruism will increase the status of the altruist.

According to competitive altruism, if people may establish a reputation by being altruistic, they would therefore compete to be the most altruistic as this should secure them the best reputation. In Chapter 4, I reported that reputation concerns led people to make wasteful donations to public goods that were either already provided by others (Study 1) or unattainable (Study 2). I predicted and found that people are more generous in public situations where they have a chance to earn a pro-social reputation. The public nature of these goods offers an excellent opportunity for people to advertise their generosity to others regardless of the efficacy of the helping act (Smith & Bliege Bird, 2000).

Indeed the results suggest that a wasteful donation increases the prestige of the donor as it is clearly not in the giver's rational self-interest. Thus, a worthless donation might give out a stronger signal of one's resource potential in social exchanges (Sozou & Seymour, 2005). This behaviour has also been reported in contexts such as the altruistic giving of turtle meat at funeral ceremonies in Micronesia to advertise the virtues of the family of the deceased (Smith & Bliege Bird, 2000), big-game meat distributions (Hawkes and Bliege Bird 2002), big-man

feasting (Wiessner and Schiefenhovel, 1995), Northwest Coast Indian potlatching (Boone 1998), and charity galas in capitalist society (Veblen, 1973).

6. High status individuals will contribute more than low status individuals

The competitive altruism hypothesis suggests that altruism and social status are closely interrelated. According to competitive altruism, status hierarchies are based, in part, on the relative contributions that individuals make towards public goods. Altruism involves long-range thinking, whereby individuals incur initial costs in order to enhance their status and reputation – this might suggest a link with intelligence. The implicit connection between altruism and status gives rise to this prediction that variations in social status predict variations in altruistic displays. High-status cues might lead individuals to focus more on their reputation and the long-term benefits of altruism, whereas low-status cues might lead to a narrow focus on their immediate benefits (Keltner, Gruenfeld, & Anderson, 2003). In addition, in a competitive environment once high status has been gained, people should aim to protect or increase their status position within the group (and hence their access to scarce resources), strategies such as increased altruism may be a way to do this. The two studies in Chapter 5 clearly demonstrated that defining people in terms of being a leader or a follower influenced their decision behaviour. In both studies those assigned to a high status position in the group contributed more to the group than those assigned to a low status position, despite the random assignment of status positions. One way to look at this effect is to suggest that status activates a competitive altruism heuristic in which group members, consciously or subconsciously, start to contribute more to a group when they find themselves in a high status position.

7. Exploration of Competitive Altruism in the real world

In Chapter 2, I proposed that altruism in terms of contributing to a public good is a key feature of the status hierarchy in human groups. In which arenas would we expect to see this altruism-status relationship? For what types of altruistic behaviour would we expect individuals to be rewarded with status? From researching historical and evolutionary literature I identified three potential candidates: 1) *group defence* – those who are willing to fight for the group and lead them to victory, e.g. military leaders, (Alexander, 1987), 2) *group cohesion* – those

who save lives or maintain social harmony in groups, e.g. doctors and police officers (Kurzban & Leary, 2005), and 3) *innovation* – those who create new resource opportunities for others, e.g. scientists and engineers (Pinker, 1997).

Two studies in Chapter 6 examined the status and reputation of those who engage in altruistic behaviour, for example, through contributions to public goods. Study 8 reports that high status occupations in British society are perceived to be those that involve contributing altruistically towards the community. Study 9 uses historical data and provides support for the hypothesis that altruistic contributions to three specific public goods can earn people their reputations.

My findings clearly show that group members who have high social status (such as those who have been nominated in the Great Britons poll) are those who contribute specifically to three kinds of public goods; group defence, group cohesion and innovation. Similarly contemporary members of the public who are viewed as high status are those whose occupations contribute highly to society (such as doctors, scientists, and military officers). The three categories were equally frequently represented in the 100 Great Britons data, which suggests their importance in modern human history.

Methodological Considerations

Overall, a reasonable degree of confidence can be placed in the results presented in this thesis. The studies were designed to address methodological considerations surrounding previous research in this area – namely the lack of experimental results. As such, the studies presented were carefully controlled and implemented. There are however, some general methodological considerations.

Use of monetary rewards that were both given and relatively low value.

One potential limitation of the research is that monetary endowments and rewards were used. The endowments were given to the participants – they were not earned. This may have meant that participants were more likely to be altruistic if they perceived that they were never really incurring a personal cost. They were simply playing with 'free' money. Also, these rewards were of a relatively low value compared to other studies that have explored human cooperation or altruism (e.g. Milinski et al., 2002, Fehr & Gachter, 2002). Therefore it is possible that the motivation to cooperate in these studies may be less than other studies, or conversely that people would be over-altruistic (if the money were so small as to be trivial).

Did these relatively low given amounts make people more likely to give? If the stakes were deemed trivial we expect everyone to give away just enough to reach the provision point, or perhaps give away all of their endowment. Yet, consistent with other studies (De Cremer & Van Vugt, 1999; Fehr & Fischbacher, 2003), group members contributed around 60% of their endowment and many contributed nothing at all. Furthermore, differences in altruism were consistently related to whether there was an opportunity to advertise generosity or not. The results obtained in this thesis suggest that subjects acted as if the money was valuable to them.

Competitive Altruism in Real-Time.

I have presented evidence that people contribute more in a public that private environment and suggested that this is evidence of competition between individuals. Future research could address more closely the specific competitive aspect of the results presented here. For example by studying competitive altruism in a real-time environment whereby individuals contribute and receive feedback over several rounds of a task that informs them of their position relative to others. This may tease out the real competitive aspect of the theory, for example if contributions increased in response to this type of feedback it may show more conclusively that individuals are responding to the competitive aspect of the environment. By increasing their altruism they may be specifically signalling that they have *more* of a particular quality than other individuals, rather than the more general information that they simply have this quality.

Short Term Experimental Games.

As mentioned before, the use of experimental games was necessary to provide an adequate level of control. However by using games that were mainly based on monetary rewards, a degree of ecological validity was sacrificed. Similar studies that use more realistic cooperative interactions should be conducted. Such interactions could take the form of exchange of valuable information or resources (such as internet forums where people post and receive free information from others, or peer to peer music file sharing), trading interactions (such as internet auction sites where reputations matter, like eBay) or looking at responses to charity. These types of studies would make it possible to examine how individuals use altruism or cooperative behaviour to display their phenotypic qualities (such as level of resources) and would complement the studies presented in this thesis.

It is also worth noting that the studies presented here examined short-term interactions between strangers and of course this does not fully represent all cooperative interactions that played a role in our evolutionary history. Although such short-term interactions were likely to have been present (for example, males interacting in a hunting expedition), longer-term interactions would also have been important (same sex coalitions for defence or child rearing for example). It would be important therefore to experiment with a focus on longer-term interactions.

Research Integration and Summary

Several key points can be taken from the above reviews. It is clear that people do have other-regarding, altruistic sentiments. They contribute to public goods from which they benefit little, and they sacrifice for others to whom they are not related. There are individual differences in altruism – in a given situation, some people will be more altruistic than others, but overall, people are more altruistic in a public environment where they have the chance to gain reputation benefits for their behaviour. Existing explanations have focussed on proximate reasons for altruism or kin and reciprocity explanations. However, there exists a need for further explanation for altruism towards public goods that is not towards kin or directly reciprocated. Competitive altruism may be one explanation, whereby individuals compete to be the most altruistic and gain status and reputation benefits. The foundation for the competitive altruism argument is an evolutionary trajectory travelled by altruism and cooperation over the last 2 million years (see part III).

II. Competitive Altruism – Relationship to Alternative Theories, Considerations, Future Directions & Implications

Competitive Altruism – Relationship to Alternative Theories

As I have suggested throughout this thesis, selection for competitive altruism may provide a more feasible account of many uniquely human public displays of helping, like charity work and donations, philanthropy, heroism, bystander intervention, and volunteering, than existing theories. One strength of competitive altruism as a theory is that it does not rely on reciprocity in order for altruism to be accounted for or maintained. Altruism will bring compensating long-term benefits

(i.e. through reputation building) that are not reliant on the straightforward return of altruism. Equally, this kind of altruism does not have to be enforced by groups (e.g. through punishment) because individuals have the option to simply avoid interactions with non-altruists; hence there is no second order free-rider problem unlike in altruistic punishment (see below; Fehr & Gaechter, 2002).

Of course I acknowledge that competitive altruism is just one of the evolutionary routes to human cooperation. Kin helping and direct reciprocity undoubtedly account for a large proportion of altruism in human society (Amato, 1993; Sober & Wilson, 1998) and it is likely that even when considering altruism towards strangers, competitive altruism is just one way that this type of altruism could have been selected for. Other emerging perspectives are group selection and, sexual selection, both of which I will discuss briefly here:

Other Altruism Theories

Group Selection. The group-level selection theory (e.g. Sober & Wilson 1998) argues that if two groups are in direct competition with one another, the group with the larger number of altruists (i.e., people willing to sacrifice themselves for the group) will have an advantage over a group comprised mainly of selfish individuals. Thus, the altruistic group would dominate the selfish group and from this, gain a reproductive advantage over them. At a population level, the number of altruists would therefore increase relative to selfish individuals thus altruism is selected for at the group level. Traditionally group selection theory placed has been placed somewhat in opposition to individual-level selection theories (e.g., kin selection), although recently it has been acknowledged that selection may occur at both levels (see multilevel selection theory; McAndrew, 2002, Wilson). Group selection theory may account for the competitive altruistic tendencies that I have shown to exist in this thesis – for example, by wanting to preferentially interact with altruists and reward them, it may be possible to set up a 'conspiracy of doves' (Dawkins, 1976). This would bring benefits to those who belonged, but not everyone could be included - hence the competition. However group selection for altruism has a potential problem of being vulnerable to cheaters - whereby those who are not altruistic may invade a population of altruists and undermine the stability of the group. Eventually, they would 'swamp' the group and altruism would need to evolve again. So, this explanation could only really work under various conditions, one of which being that there is very little migration between groups – so 'selfish'

individuals could not invade 'altruistic' groups. Group selection theory has yet to receive much direct empirical support however it is a potentially persuasive argument for its role in the evolution of altruism among humans.

Sexual Selection. Miller (2001) argued that mate choice or sexual selection might have shaped our distinctive human capacity for altruism. Basically, the argument is that the hidden genetic benefits of altruism could have been reproductive: conspicuous altruism and other moral behaviours became sexually attractive because they were good fitness indicators. Their reliability was guaranteed by the costs of altruism, under the handicap principle. Only the fit could afford to be generous. Sexual selection can favour almost any degree of generosity or heroism, despite their survival costs, just as it can favour almost any length of peacock tail. The evolution of big-game hunting provides one example of sexual selection for altruism. Hawkes (1993) has argued that male hunting of large, dangerous prey evolved not to 'feed one's family' (monogamous nuclear families being rare in the Pleistocene), but to attract multiple female partners, who appreciated hunting ability as a fitness indicator, and as a direct nutritional benefit to themselves and their offspring. Anthropological data show that traditionally, good hunters have more extra-pair copulations than poor hunters and that high status individuals such as leaders have higher reproductive success that low status individuals (Kaplan & Hill, 1985; Perusse, 1993). Empirical studies have shown that: males are more generous in the presence of females e.g. Goldberg (1995); males who are more helpful and altruistic are rated higher on all levels of attractiveness by females (Jensen-Campbell et al., 1995). This theory also supports Buss's (1989) finding that 'kindness' was the top-ranked, most-desired trait in a potential mate across all 37 cultures he studied

This view is similar to that of competitive altruism which argues that there are other benefits to altruism beyond direct reciprocity – mating success could be just one of them. Sexual selection may provide a complementary way of explaining how selfish genes can give rise to altruistic individuals, and may explain the competitive altruistic tendencies of humans. This thesis did not focus on mating success / attractiveness as a potential mate it is a potential area for future research.

Another Side of Competitive Altruism? Altruistic Punishment

In order for altruism among unrelated individuals to evolve, individuals must be able to identify altruists and reward them. I have shown throughout this thesis that this can and does seem to occur. It follows that they must also be able to

identify non-altruists and defectors and either punish them or avoid them (see for example, Axelrod, 1984). This is especially true for altruists who are bearing the cost of their behaviour. In public goods scenarios where the good is collectively beneficial, but also open to free-riders this imposes a collective action problem whereby free-riders are better off than co-operators causing selection for non-cooperation (which will eventually undermine cooperation). It has been shown that imposing sanctions on free-riders can potentially solve this – for example, Fehr & Gaechter, (2002) show that cooperation flourishes if altruistic punishment is possible, and breaks down if it is ruled out. Altruistic punishment means that individuals punish, although the punishment is costly for them and yields no material gain. However there is some preliminary evidence that altruistic punishment may confer similar status / reputation benefits as being altruistic can, Barclay (2006). So, altruistic punishment may operate in a similar way to the rewarding of altruists in competitive altruism. However there is still a second-order free-rider problem (who will punish the non-punishers?). Alternatively, (or in addition), group selection may also lead to the evolution of altruistic punishment (Boyd, Gintis, Bowles & Richardson, 2003) as groups with more punishers will exhibit a greater level of cooperative behaviours. As a result the number of punishers will increase, and the more punishers there are the less the individual selection costs against punishers would be – so punishment could be a stable strategy to explain cooperation. This is another potentially interesting area for future research.

Considerations for Competitive Altruism

Could an Altruistic Reputation be 'faked'?

One consideration that could pose a problem for competitive altruism is that maybe it is possible for people to fake altruism in order to gain status or to gain access to desirable interaction partners. If any individual could easily obtain an altruistic reputation it because it would make altruism a worthless signal (in this theory altruism has to be an honest costly signal of quality). There are two arguments that should allay this problem. Firstly, by definition, altruism imposes a cost on the individual, so those who lack the necessary resources are automatically excluded from displaying the behaviour (e.g., an individual who has little money cannot give much away to others). But this may not stop those who could afford it

from investing in an altruistic reputation and then defecting. This may be resolved by the second argument - it seems that across all human societies, people invest a great deal of time and effort in their reputations – we are all concerned with our relative standing within our social groups. As such there are systems in place to keep check on whether people's status and reputation is relative to their contributions to the group. For example, maybe gossip is one mechanism by which reputations can be monitored (Dunbar, 2004).

Is Altruism always Desirable?

Another consideration for the theory stems from the arguments and evidence presented throughout this thesis, which suggest that altruism is a desirable behaviour. If altruists do better in the long term than non-altruists (and groups of altruists do better than groups of selfish individuals), then why isn't everyone altruistic all the time? Is altruism always a desirable trait? Firstly, as described above, due to the cost of altruism, it is not possible for all people to be altruistic. Secondly, being seen as an indiscriminate altruist may not always be regarded as a desirable quality. For example someone who aids members of a hostile or opposition group when groups are in competition may not be regarded favourably. Also, it is possible to damage one's reputation by consistently helping defectors (Nowak & Sigmund, 2005). This is a potential area for future research, which would complement the research presented in this thesis.

Future Directions for Competitive Altruism

This thesis could only provide a starting point for testing competitive altruism theory and there is a range of other aspects that remain to be tested. For example, there are several predictions that were made in Chapter 2 that this thesis could not address.

People should refuse help when it is offered or when they need it.

In competitive altruism, altruism is linked to social status. People who act altruistically gain the trust and respect of others, which tends to lead to status. Those who are more altruistic than others, reap greater status rewards. As altruism may be a serving as signal of a person's valuable qualities and people would compete to be the most altruistic - what is the cost of this to those who are the recipients of altruism? Well, just as altruism raises status for those who are doing the giving,

accepting help may lower it. It is possible that people would therefore be expected to reject help (especially in a public setting) to avoid this damage to their status (Schneider, Major, Luthanen, & Crocker, 1996; Schroeder, Penner, Dovidio, & Piliavin, 1995).

People should be highly censorious; they should be eager to point out the selfishness of others in order to shine by comparison.

Again, due to the implicit connection between altruism and social reputations it is expected that one part of the competitive struggle to be the most generous may involve public comparisons between the self and others, in order to expose their altruistic inferiority (perceived or real) and thus further one's own reputation.

People should want to appear more altruistic than they really are.

A related prediction to the previous one, suggests that in the competition to gain a good reputation people might falsely judge their own generosity. There is some evidence to suggest that this is the case, Epley & Dunning (2000) found many people make an error in self-assessment of generosity - participants in their experiments consistently tended to overestimate their own generosity. This research may link in with the discussion of whether it is possible to fake a reputation or to secure a reputation and then defect and is a potential area for future research.

Implications of Competitive Altruism for Society

It seems that an altruistic 'impulse' does exist. This has been shown through thesis and is founded in evolutionary history as described below. Competitive altruism provides an explanation for why humans are so uniquely cooperative. How can this theory then be applied to increasing altruism in society? The competitive altruism hypothesis has various implications for theory and practice. A first implication is that it provides a rationale for why altruists might ultimately be better off than non-altruists in society. There has been much scientific debate about whether "nice guys finish first or last" (Axelrod, 1984; Dawkins, 1976). My research is in line with the suggestion that niceness pays because in a competitive market for interaction partners, altruists seem gaining higher status for themselves than selfish people (although it remains to be conclusively seen whether this high status would confer other benefits such as increased opportunities, though my research suggests it might).

Rewards for Altruism.

Research into competitive altruism may help to dispel the belief that financial rewards are what may attract people to give to their community. For example, in Britain blood is given free of charge. Donors are proud to be known as altruistic people and neither expect nor receive payment. There is rarely a shortage and the blood is high quality as only the healthiest people donate. A few years ago there was talk about selling blood to make money for a new blood donor service. Immediately there was outrage and people didn't want to give blood, even though the money was to go back into the blood donor service. People felt it was no longer a gift-relationship, a contribution to a public good (Beal & van Aken, 1992). As soon as it became a matter of money changing hands, blood donating became a different sort of act (see crowding out hypothesis, Andreoni, 1993). Improving our understanding of people's natural competitiveness and the idea that unselfish behaviour may respond to the same competitive urges that drive selfish behaviour, may enable others to exploit it to induce altruism and generosity. Ultimately, this is good for society.

Observable Altruism.

Another practical implication is that altruism in society can be fostered by encouraging people to publicly display their generosity. For example, naming the identity of donors and revealing the amount they have given should set up a competitive altruism process in which people try to out compete each other in their charity donations. For example, in the UK, the Beacon Awards offer recognition and public approval to those give to charity. Our hypothesis suggests that this could backfire, however, when the amount donated by the first people is so large that any additional contributions pale in comparison.

High Status and Altruism.

The competitive altruism hypothesis as it pertains to high status and altruism has an important implication. More specifically, results presented in this thesis suggest that fundraisers should perhaps look to start their campaigns by soliciting the wealthier, more recognised and respected individuals in a community as they are likely to give more. A recent study by Kumru and Vesterlund (2005) reports that low-status followers are likely to mimic contributions by high-status leaders, and that this encourages high-status leaders to contribute more. Contributions are therefore larger when individuals of high status contribute before rather than after

those of low status. The importance of the 'leadership phase' of fund-raising is emphasised in many handbooks for fund-raisers. For example *The Nonprofit Handbook*, recommends a pyramid strategy for fundraising in which leaders are at the pinnacle, "Leadership people are the highest echelon of prospects—the people from whom the largest gifts are possible and . . . . the people whose generosity will set the pattern for others. These are the people you approach first." It makes the specific recommendation to fund-raisers that "the lead gift should be at least 10% of the overall goal" (Lawson 2001, p. 756).

So, high status contributors can distinguish themselves not only by being wealthy, but also by being well known and well respected, and they can use this position for the greater good. Andreoni (2004) suggests that by giving first, high status individuals provide a signal to others that the cause is worthy. Hence the leader must give an unusually large amount to convey a credible signal of quality (both of themselves as an individual and of the charity they support).

III. Competitive Altruism – A Brief Evolutionary History

I will close this discussion by presenting a scenario for the development of competitive altruism in human evolutionary history. To understand the evolution of altruism towards a group good, we must first understand why humans formed alliances with non-relatives in large groups. What were the adaptive problems it would solve?

Historical Account: The Evolution of Group Altruism.

Around 1.2 million years ago, brains in the *Homo* line began to expand rapidly, more than doubling in size to the modern human level. The period of most rapid expansion occurred between 500 and 100 thousand years ago. Along with this increase in brain (specifically, the neocortex) size was a steady increase in average group size. It is this increase in group size that is thought to drive brain size evolution (Dunbar, 2003). There are many speculations about the causes of this increased group size. One theory suggests that humans were forced to cope with rapidly changing environments, such as changes in climate and environment, and that ecological pressures forced humans onto the savannah where they were at increased risk of predation (Dunbar, 2003). This meant that vital resources like food

and shelter would have been distributed over larger areas, which in turn forced kin groups to form alliances outside of the family, with other groups. It is also likely that humans were expending more energy at this time and that child rearing became more demanding (Fuentes, 2005). All these factors contributed to an emergence of sociable behaviour in early humans that made them less of a target for predators – it helped to protect them from predators.

To be successful at living in a large group it would have been vital to successfully engage in strategic cooperative alliances with other individuals, both kin and non-kin. For example, female-female alliances were favoured as they enabled females were better able to protect themselves from sexual coercion (Wrangham, 1993). Same-sex alliances were also aided in resource competition or cooperative defence (so ultimately can also aid survival), (Kirkpatrick, 2000).

In permanently social groups people cannot interact or ally with all people, all of the time so this environment presented a new set of adaptive problems - in terms of both finding reliable and generous coalition partners and advertising oneself to others as such a partner. In this context an altruistic reputation would have been beneficial. It may mean that others are more likely to trust you not to defect, may be more willing to cooperate with you or to aid you when you needed it. This was likely to evoke competition for social partners – the group effectively became a 'market place' where individuals compete with each other for access to the 'best value' allies (Noe & Hammerstein, 1994). So, whenever there was competition for social partners, individuals may compete to be altruistic. Developing an altruistic reputation would create opportunities unavailable to non-cooperators. It also became possible for co-operators to preferentially interact with other cooperators and exclude non-cooperators from groups.

Competitive altruism therefore can be seen to have its roots in evolutionary history and thus may provide an alternative explanation for the evolution of altruism towards strangers.

Concluding Thoughts

Altruism, the intention to benefit others at a cost to oneself (Batson, 1998; Van Vugt & Van Lange, in press), is one of the major puzzles in the behavioural sciences today. Across many decades of research, social psychologists studying altruism and cooperation have identified numerous important factors that affect helping

behaviour, yet, social psychological models of altruism often do not address where these basic motivations come from or how they came to be so important in human evolutionary history (cf. McAndrew, 2002). For evolutionary theorists, altruism has always been something of an enigma.

This thesis presented and empirically tested a novel theory of altruism, called competitive altruism, which I proposed may account for a range of altruistic behaviours among humans in particular, that the theories of kinship and reciprocity cannot easily explain. Competitive altruism is the process through which individuals attempt to out compete each other in terms of generosity. It emerges because altruism enhances the status and reputation of the giver. Status, in turn, yields benefits that would be otherwise unattainable. Although further work needs to be carried out, the results of this thesis offer a sounds basis for suggesting that competitive altruism may provide a new way of thinking about human sociality. It helps to explain why humans are unusually altruistic and cooperative even (or especially) when they operate in large groups.

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APPENDIX A

Status Questionnaire (Study 1)

Your individual number ☐ Your group's number ☐

Other members in your Group ☐ ☐

A.

1. Rate your perception of the ability of each member to earn money for the group

Yourself

Low						High
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Low						High
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Low						High
1	2	3	4	5	6	7

2. Your perception of the effectiveness of each member at earning money for the group

Yourself

Low						High
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Low						High
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Low						High
1	2	3	4	5	6	7

3. Rate your preference for each group member to act as a representative or spokesperson for your group.

Yourself

Least preferred						Most preferred
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Least preferred						Most preferred
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Least preferred						Most preferred
1	2	3	4	5	6	7

4. Rate your preference for each group member to coordinate the group and make a final decision on the group's contribution.

Yourself

Least preferred						Most preferred
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Least preferred						Most preferred
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Least preferred						Most preferred
1	2	3	4	5	6	7

5. How legitimate do you feel each group member would be as a representative or spokesperson for your group

Yourself

Not legitimate						Highly Legitimate
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Not legitimate						Highly Legitimate
1	2	3	4	5	6	7

Member ..... (please write in one fellow group members ID number)

Not legitimate						Highly Legitimate
1	2	3	4	5	6	7

6. How willing would you be to co-operate with each group member if they were in charge of deciding the amount the group should take or leave in subsequent trials?

Member ..... (please write in one fellow group members ID number)

Not willing at all						Very willing
1	2	3	4	5	6	7

Member ..... (please write in the other fellow group members ID number)

Not willing at all						Very willing
1	2	3	4	5	6	7

7. Please rate your feelings of liking towards the other group members

Member ..... (please write in one fellow group members ID number)

Little						A lot
1	2	3	4	5	6	7

Member ..... (please write in the other fellow group members ID number)

Little						A lot
1	2	3	4	5	6	7

B. In the next part of the experiment only one member of your group will be required to play the game on behalf of the group. They will play the same commons resource game with a member from each of the other the groups in the room to try and earn money for your group.

Which member of the group (yourself included) would you like to support to play on behalf of your group?

.....

Demographics

Your email address (for informing prize winners):
.....

Age: .....

Sex: .....

APPENDIX B

Manipulation Check (Study 1)

A5

Your individual number ☐ Your group's number ☐

QUESTIONNAIRE B

Rate on the following 7-point scale how you felt during the study

Confused

Not at all						Very
1	2	3	4	5	6	7

Carefree

Not at all						Very
1	2	3	4	5	6	7

Interested

Not at all						Very
1	2	3	4	5	6	7

Anonymous

Not at all						Very
1	2	3	4	5	6	7

Distracted

Not at all						Very
1	2	3	4	5	6	7

Uninhibited

Not at all						Very
1	2	3	4	5	6	7

Free

Not at all						Very
1	2	3	4	5	6	7

Happy

Not at all						Very
1	2	3	4	5	6	7

Bored

Not at all						Very
1	2	3	4	5	6	7

Restrained

Not at all						Very
1	2	3	4	5	6	7

Alert

Not at all						Very
1	2	3	4	5	6	7

Conspicuous

Not at all						Very
1	2	3	4	5	6	7

Tired

Not at all						Very
1	2	3	4	5	6	7

Inhibited

Not at all						Very
1	2	3	4	5	6	7

Concerned

Not at all						Very
1	2	3	4	5	6	7

APPENDIX C

Intelligence Questionnaire (Study 1)

The Classic IQ Test from http://www.classiciq.com

IQ test
Read questions and circle the correct answer – You have 15 minutes only

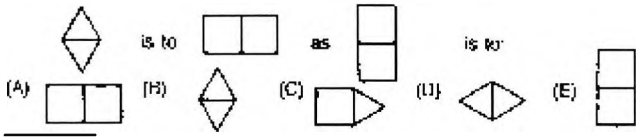
1. Which one of the five is least like the other four?

BEAR - SNAKE - COW - DOG - TIGER

2. If you rearrange the letters "BARBIT", you would have the name of a:

OCEAN - COUNTRY - STATE - CITY - ANIMAL

3. Which one of the five designs makes the best comparison?



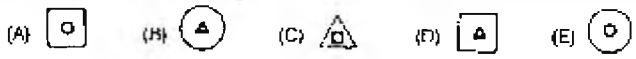
4. John, twelve years old, is three times as old as his brother. How old will John be when he is twice as old as his brother?

15 - 16 - 18 - 20 - 21

5. Which one of the five makes the best comparison?

Milk is to glass as letter is to:
STAMP - PEN - ENVELOPE - BOOK - MAIL

6. Which one of the five is least like the other four?



7. Which one of the five choices makes the best comparison?

LIVE is to EVIL as 5232 is to:
(A) 2523 (B) 3252 (C) 2325 (D) 3225 (E) 5223

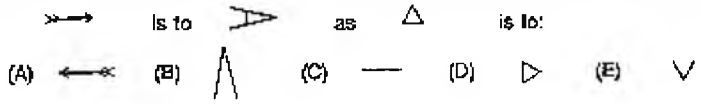
8. "If some Smaugs are Thors and some Thors are Thrains, then some Smaugs are definitely Thrains."

This statement is: TRUE - FALSE - NEITHER

9. Which one of the numbers does not belong in the following series?

9 - 7 - 8 - 6 - 7 - 5 - 6 - 3

10. Which one of the five designs makes the best comparison?



11. Jack is taller than Peter, and Bill is shorter than Jack.

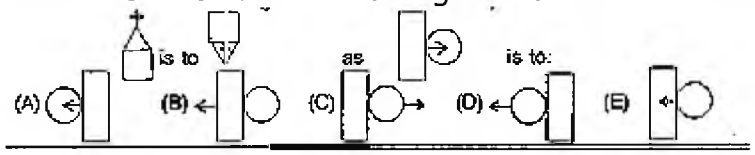
Which of the following statements would be most accurate?
(A) Bill is taller than Peter.
(B) Bill is shorter than Peter.
(C) Bill is as tall as Peter.
(D) It is impossible to tell whether Bill or Peter is taller.

12. If you rearrange the letters "RAPIS", you would have the name of a:

OCEAN - COUNTRY - STATE - CITY - ANIMAL

13. Which one of the designs is least like the other four?

14. Which one of the five designs makes the best comparison?



15. The price of an article was cut 20% for a sale. By what percent must the item be increased to again sell the article at the original price?

15% - 20% - 25% - 30% - 40%

16. Which one of the five is least like the other four?

BOTTLE - CUP - TUB - FUNNEL - BOWL

17. Mary had a number of cookies. After eating one, she gave half the remainder to her sister. After eating another cookie, she gave half of what was left to her brother. Mary now had only five cookies left. How many cookies did she start with?

11 - 22 - 23 - 45 - 46

18. Which one of the numbers does not belong is the following series?

2 - 3 - 6 - 7 - 8 - 14 - 15 - 30

19. "A spaceship received three messages in a strange language from a distant planet. The astonauts studied these messages and found that

"Elros Aldarion Elendil" means "Danger Rocket Explosion" and "Edain Mnyatur Elros" means "Danger spaceship Fire" and "Aldarion Gimilzor Gondor" means "Bad Gas Explosion".

What does "Elendil" mean?

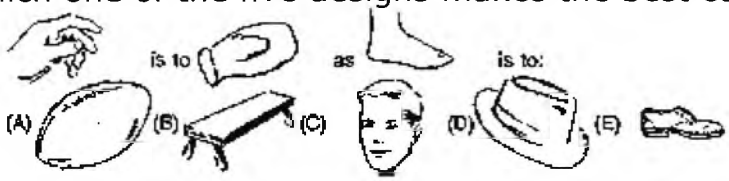
DANGER - EXPLOSION - NOTHING - ROCKET - GAS

20. Which one of the five designs is least like the other four?

21. If you rearrange the letters "MANGERY", you would have the name of a:

OCEAN - COUNTRY - STATE - CITY - ANIMAL

22. Which one of the five designs makes the best comparison?



23. "If all Wargs are Twerps and no Twerps are Gollums, then no Gollums are definitely Wargs."

This statement is: TRUE - FALSE - NEITHER

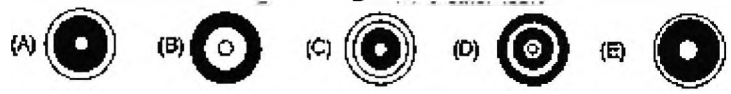
24. Which one of the five is least like the other four?

HORSE - KANGAROO - ZEBRA - DEER - DONKEY

25. "John's mother sent him to the store to get 9 large cans of peaches. John could only carry 2 cans at a time. How many trips to the store did John have to make?

4 - 4½ - 5 - ½ - 6

26. Which one of the five designs is least like the other four?



27. Mary was both 13th highest and 13th lowest in a spelling contest.
How many people were in the contest?

13 - 25 - 26 - 27 - 28

28. Which one of the five makes the best comparison?
Water is to ice as milk is to:

HONEY - CHEESE - CEREAL - COFFEE - COOKIE

29. Which one of the numbers does not belong in the following series?

1 - 2 - 5 - 10 - 13 - 26 - 29 - 48

30. "A fish has a head 9" long. The tail is equal to the size of the head plus one-half the size of the body. The body is the size of the head plus the tail."

How long is the fish?

27" - 54" - 63" - 72" - 81"

APPENDIX D

Status Questionnaire (Study 2 & 5)

A4

Your individual number ☐ Your group number ☐

Other members in your group ☐ ☐

1. Please rate each member of your group (yourself included) on the following scale according to your perception of their *status* within your group.

Yourself

Least 1 2 3 4 5 6 7 Most
Status Status

Member ..... (please write in one fellow group members ID number)

Least 1 2 3 4 5 6 7 Most
Status Status

Member ..... (please write in one fellow group members ID number)

Least 1 2 3 4 5 6 7 Most
Status Status

2. Please rate the *prominence* of each of the members of your group (How much did you notice them and what they took / left in the resource?)

Member ..... (please write in one fellow group members ID number)

Not at all 1 2 3 4 5 6 7 Most Prominent

Member ..... (please write in one fellow group members ID number)

Not at all 1 2 3 4 5 6 7 Most Prominent

3. Please rate the amount of *respect* you have for each of the members of your group

Member ..... (please write in one fellow group members ID number)

Little 1 2 3 4 5 6 7 A Lot

Member ..... (please write in one fellow group members ID number)

Little 1 2 3 4 5 6 7 A Lot

4. Please rate each member of your group (yourself included) on the following scale according to your perception of their *influence* within your group.

Yourself

Least 1 2 3 4 5 6 7 Most Influence

Member ..... (please write in one fellow group members ID number)

Least 1 2 3 4 5 6 7 Most Status

Member ..... (please write in one fellow group members ID number)

Least 1 2 3 4 5 6 7 Most
Influence Influence

5. Please rate the feelings of *liking* you have for each of the other members of your group

Member ..... (please write in one fellow group members ID number)

Little 1 2 3 4 5 6 7 A lot

Member ..... (please write in one fellow group members ID number)

Little 1 2 3 4 5 6 7 A lot

1. In the next part of the experiment you will play the same commons game again. This time you can choose to play with *one* other member from your group so that you play the game as a pair. The resource will be shared between the two of you and the person that you do not choose will not get a share of the resource.

   Please rate your preference for each of the other group members to be your partner in the next game

Member ..... (please write in one fellow group members ID number)

Not 1 2 3 4 5 6 7 Very strong
At all Preference

Member ..... (please write in one fellow group members ID number)

Not 1 2 3 4 5 6 7 Very strong
At all Preference

Demographics

Your email address (for informing prize winners):
.....

Age: .....

Sex: .....

APPENDIX E

Personality Questionnaire (Study 2)

IPIP-NEO from http://www.personalitytest.net/ipip/ipipneo300.htm

Individual number ☐ Group number ☐

On the following pages there are phrases describing people's behaviours. Please use the rating scale below to report how accurately each phrase describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you and are roughly the same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully and then write the number that corresponds to the accuracy of the statement. Please answer every question.

Response Options

Very inaccurate	Inaccurate	Neither accurate nor inaccurate	Accurate	Very accurate
1	2	3	4	5

1. Tend to vote for conservative political candidates _____
2. Have frequent mood swings _____
3. Am not easily bothered by things _____
4. Believe in the importance of things _____
5. Am the life of the party _____
6. Am skilled in handling social situations _____
7. Am always prepared _____
8. Make plans and stick to them _____
9. Dislike myself _____
10. Respect others _____
11. Insult others _____
12. Seldom feel blue _____
13. Don't like to draw attention to myself _____

14. Carry out my plans _____

15. Am not interested in abstract ideas _____

16. Make friends easily _____

17. Tend to vote for liberal party candidates _____

18. Know how to captivate people _____

19. Believe others have good intentions _____

20. Do just enough to get by _____

21. Find it difficult to get down to work _____

22. Panic easily _____

23. Avoid philosophical discussion _____

24. Accept people as they are _____

25. Do not enjoy going to art museums _____

26. Pay attention to details _____

27. Keep in the background _____

28. Feel comfortable with myself _____

29. Waste my time _____

30. Get back at others _____

31. Get jobs done straight away _____

32. Don't talk a lot _____

33. Am often down in the dumps _____

34. Do not like art _____

35. Often feel blue _____

36. Make demands on others _____

37. Have a good word for everyone _____

38. Don't see things through _____

39. Feel comfortable around people _____

40. Have little to say _____

42. Make people feel welcome _____

43. Anticipate the needs of others _____

44. Love to help others _____

45. Am concerned about others _____

46. Look down on others _____

47. An indifferent to the feelings of others _____

48. Make people feel uncomfortable _____

49. Turn my back on others _____

50. Take no time for others _____

APPENDIX F

Questions to decide leadership Role (Study 7)

Please rate the following qualities on how much you agree or disagree

Q1: A leader should be experienced

Disagree a Lot	1	2	3	4	5	6	7	Agree a Lot

Q2: A leader should be old

Disagree a Lot	1	2	3	4	5	6	7	Agree a Lot

Q3: A leader should be tall

Disagree a Lot	1	2	3	4	5	6	7	Agree a Lot

Q4: A leader should be intelligent

Disagree a Lot	1	2	3	4	5	6	7	Agree a Lot

Q5: A leader should be brave

Disagree a Lot	1	2	3	4	5	6	7	Agree a Lot

APPENDIX G

Income Data (Study 8)

Median annual income for the occupations

	Median Annual Income
Doctor	65,950
Firefighter	25,810
Scientist	30,414
Teacher	31,165
Military Officer	32,500
Nurse	21,424
Police Officer	34,908
Royal Family	-
Priest / Minister	18,460
Member of Parliament	57,836
Engineer	33,386
Entertainer	31,475
Actor	31,475
Athlete	-
Business Executive	32,202
Lawyer	39,093
Journalist	25,504
Architect	31,701
Banker	44,882
Union Leader	-
Accountant	34,294
Estate Agent	23,709
Stock Broker	-

APPENDIX H

100 Greatest Britons (Study 9)

Position	Great Briton	Greatest Achievement / Fame
1	Sir Winston Churchill	Prime minister 1940 – lead Britain to victory in WW2 when the cause appeared hopeless
2	Isambard Kingdom Brunel	Civil Engineer - design of ocean going ships
3	Diana, Princess of Wales	The 'Peoples Princess' – tireless charity worker and campaigner
4	Charles Darwin	Originator of the theory of evolution by natural selection
5	William Shakespeare	Dramatist and poet
6	Horatio Nelson	Victories during war with France. Lost an eye attacking Corsica
7	Elizabeth 1	Reign characterised by peace and prosperity –secure establishment of Church of England. Also defeated Spanish Armada
8	Isaac Newton	Outstanding contribution to knowledge – gravity
9	John Lennon	Pop star – working class hero 'pop music is the peoples form' – i.e. speaks a language we all understand
10	Oliver Cromwell	revolutionary – key role in winning parliament victory in English civil war – presided over England's only republican government

11	Ernest Shackleton	Antarctic Explorer
12	James Cook	Circumnavigator
13	Robert Baden Powell	Founded Boy Scout and Girl Guide movement
14	Alfred the Great	King of West Saxons – defence of England from Vikings
15	Arthur Wellesley, 1st Duke of Wellington	Hailed as man who achieved the peace of nations when he defeated Napolean at Waterloo
16	Margaret Thatcher	Prime Minister – 1st woman
17	Michael Crawford	Actor and comedian
18	Queen Victoria	Expansion of British Empire – England grew socially and economically during her reign
19	Paul McCartney	Pop musician – Beatles
20	Alexander Fleming	Discoverer of penicillin
21	Alan Turing	Mathematician – founder of computer science
22	Michael Faraday	Scientist – discoverer of electromagnetism
23	Owain Glyndwr	Leader of the Welsh – fought for independence against English rule
24	Queen Elizabeth II	
25	Steven Hawking	Theorectical physicist – A Brief History of Time

26	William Tyndale	Translator of the Bible
27	Emmeline Pankhurst	Suffragette – women's right to vote
28	William Wilberforce	Philanthropist and reformer – political efforts against slavery – involved in abolition of slave trade in 1798
29	David Bowie	Singer, actor
30	Guy Fawkes	Plot to blow up parliament – revolting against protestant treatment of catholics
31	Leonard Cheshire	Founder of Homes for the Disabled
32	Eric Morecambe	Comedian
33	David Beckham	Captain of England football team
34	Thomas Paine	Author – influential in declaration of independence. Spoke out against slavery
35	Boudicca	Queen of Iceni – leader of revolt against Roman rule
36	Steve Redgrave	Olympic rowing champion
37	Thomas More	Lord Chancellor, scholar and author – prepared to die for his beliefs
38	William Blake	Poet and painter
39	John Harrison	Horologist – discoverer of longitude

40	Henry VIII	'Defender of the Faith' – separation of Church of England from Roman
41	Charles Dickens	Novelist
42	Frank Whittle	Aeronautical engineer and inventor of the turbo jet engine
43	John Peel	Radio presenter
44	John Logie Baird	Inventor of television
45	Aneurin Bevan	Welsh politician – fought to end inequality and set up a welfare state
46	Boy George	Pop musician
47	Douglas Bader	WW2 hero – fought on with artificial legs after being shot down
48	William Wallace	Hero of Scotland – fought for freedom and peace. Leader of Scotland during 13thC English rule
49	Francis Drake	1st circumnavigator of the world
50	John Wesley	Founder of the Methodist Church
51	King Arthur	Leader of wisdom and fairness. Fought against Saxons
52	Florence Nightingale	Reformer of hospital nursing and sanitation
53	T. E. Lawrence	Soldier
54	Robert Falcon Scott	1st to the Antarctic

55	Enoch Powell	Right wing politician – racist
56	Cliff Richard	Singer and actor
57	Alexander Graham Bell	Inventor of telephone
58	Freddie Mercury	Vocalist –Queen
59	Julie Andrews	Actress
60	Edward Elgar	Composer
61	The Queen Mother	
62	George Harrison	Musician – The Beatles
63	David Attenborough	Naturalist and TV presenter
64	James Connelly	A leader of the 1916 Easter Rising (IRA)
65	George Stevenson	Inventor of railway engine
66	Charlie Chaplin	Actor and director
67	Tony Blair	Prime Minister present
68	William Caxton	Inventor of the printing press
69	Bobby Moore	Footballer
70	Jane Austen	Novelist
71	William Booth	Founder of Salvation Army
72	Henry V	King of England 1413-22 – defeated France
73	Alexander Crowley	Occult leader – magician
74	Robert I 'The Bruce'	King of Scotland

75	Bob Geldof	Musician
76	The Unknown Soldier	
77	Robbie Williams	Pop singer
78	Edward Jenner	Discoverer of vaccination
79	David Lloyd George	Prime Minister 1916-22 – WW1
80	Charles Babbage	'Father of computing' – designed first computer
81	Geoffrey Chaucer	Author of Canterbury Tales
82	Richard III	King 1483-85 – War of Roses – stability of England
83	J. K. Rowling	Author of Harry Potter
84	James Watt	Inventor and engineer – improvement of the Steam Engine
85	Richard Branson	Entrepreneur – Virgin brand
86	Bono	Pop singer – U2
87	John Lydon	Musician – Sex Pistols
88	Montgomery of Alamein	Field Marshal
89	Donald Campbell	Record Breaker – land and water speed records
90	Henry II	King 1154-89 – refined Norman government and created a capable bureaucracy
91	James Clerk Maxwell	Physicist – theory of electricity / speed of light / Saturn's rings
92	J. R. R. Tolkein	Author of Lord of the Rings and The Hobbit

93	Walter Raleigh	Sailor and Explorer – 'New World' popularised tobacco
94	Edward I	King 1272-1307 – beat Wales and Scotland
95	Barnes Wallis	Engineer and inventor – WW2 bouncing bombs
96	Richard Burton	Actor
97	Tony Benn	Politician
98	David Livingstone	Missionary and explorer
99	Tim Berners Lee	Director of WWW consortium
100	Marie Stopes	Pioneer and advocate of birth control