**Chapter 5.   Can Suicide Bombers Be Rational?**

# 1.    Introduction

The last chapter addressed the demand for extremist acts.   But what about the supply? The supply of suicide martyrs is particularly difficult to understand.  The perpetrators are willing, not merely to risk their lives, but to commit themselves to die for their cause. It is this apparent readiness to sacrifice oneself which makes the threat of suicide  terrorism so large and so incomprehensible.   Perhaps more than anything else, this marks off "them" from "us" as most of us cannot imagine ourselves committing any such act.  In this chapter, I argue that it is possible to explain such acts in rational choice terms, and that, while such acts are indeed extreme, they are merely an extreme example  of a general class of behavior in which all of us engage.

One reason such acts are committed is to obtain "solidarity" (or  social cohesion or "belonging-ness)."  Solidarity is typically acquired through group-directed activity, especially in gangs, cults, unions, political parties or movements, and religious sects.   I analyse the production of solidarity as a trade involving *beliefs* or values-- the individual adopts the beliefs sanctioned by the group and receives the benefit of  social cohesion in exchange. I construct a simple formal model to illustrate this process, and then develop the conditions under which rational suicide for a cause is possible.

The central result of the chapter is what I call the "solidarity multiplier".  The idea here can be grasped if we consider what happens when, as the result of some exogenous change, an individual desires more group solidarity than before and intensifies his participation in group activities in order to get it.  In so doing she gives up some of her own values and substitutes the values of the group for them.  That is, her utility function changes and incorporates more of the group's values than before.  Such trades imply that a person is more and more giving up his

identity for that of the group, perhaps as personified by its leader, and losing the capacity to make decisions based on values other than those of the leader. Then the normal tendency for the marginal value of solidarity to the group member to diminish as a result of choosing more of it will be reversed to some extent by the increased incorporation of the leader's values into the member's utility function. Consequently, she ends up choosing *more* solidarity than she would have on the basis of the "original" or "autonomous" utility function. This is the "solidarity multiplier". Under certain conditions this self- reinforcing process of choosing more solidarity will approach a corner solution where solidarity is maximal and the individual's utility function is entirely that of the leader. Near to or at a corner, rational suicide for the group is possible.

The outline of the chapter is as follows. The next section outlines the process in which beliefs are traded for solidarity. Section 3 describes the solidarity multiplier. Section 4 indicates why a solution at or near the corner indicates a willingness to sacrifice oneself for the group, and compares this explanation to other explanations of suicide martyrdom which have been offered. Section 5 looks at various alternative organizational "technologies" for producing solidarity and considers the structure of Al Qaeda in particular. Section 6 concludes the chapter.

## 2.    The Demand for  Solidarity

While not common in popular accounts, many social scientists who have studied the problem of suicide terrorism have maintained that the actions of the participants are rational. Thus, Crenshaw (1990) lists the "costs and benefits" of terrorist activity. The costs to the organization include the likelihood of a punitive government reaction and the possible loss of

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popular support. The advantages include an agenda setting function, demoralizing the administrative cadres of the government, disruption of the rule of law, and the inspiration to others to resist. Hoffman (1998) prefaces his well-known book on terrorism with the observation that most terrorists appear to be normal and and for many "terrorism is (or was)....... an entirely rational choice" (p. 7). Pape (2002) develops a "strategic logic"of suicide terrorism in particular and shows that "Viewed from the perspective of the terrorist organization, suicided attacks tare designed to achieve specific political purposes: to coerce a target government to change policy, to mobilize additional recruits and financial support, or both" (2002, p. 4). With reference to the universe of suicide attacks of 1980- 2001, he shows that most suicide attacks occured in organized, coherent campaigns, that they were aimed at democracies (which are more vulnerable to this kind of pressure), and that they were specifically directed at nationalist goals. Other evidence is provided by Krueger and Maleckova (2002), who perform a statistical analysis of the determinants of participation in Hezbollah militant activities in Lebanon. They find that having a living standard above the poverty line or a secondary school or higher education is positively associated with participation in Hezbollah. They also look at data on Jewish settlers who attacked Palestinians in the West Bank in the early 1980's were largely from high paying occupations. These data agree with the general conclusion of sociologists studying protest activities, who find that such people, rather than marginal, isolated, poor and uneducated are typically better educated and better off economically than average (Oxford, Knoke).

Other work also takes a rational approach: Azzam (forthcoming) models the decision of suicide martyrs as a rational choice, based on the altruism of the martyr to supply public goods to the next generation. Suicide bombing is, in this framework, an extreme act of "saving" in which

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current consumption is lowered to zero. One difficulty here is the fact that this altruism is of a different nature than that used in the economic family, it is altruism towards the next generation, or, at best, nephews and nieces, as he puts it. This "generalized altruism" would seem to be of a different nature than that of a mother towards her children, typically assumed in the economics of the family. To the extent that various organizations offer cash payments to the families of the relatives of martyrs, on the other hand, altruism on the part of suicide martyrs would be relevant, but it might be altruism towards their parents rather than the next generation.

Berman and Laitin (forthcoming) use a "club good" approach. Following Iannacone (1992), they argue that religious groups are particularly good at designing signals of commitment that will distinguish the members who have the right degree of commitment from those who might pull out or defect. Religious sects (and possibly other groups like ethnic groups) are particularly capable of solving this problem because they possess mechanisms which tend to exclude free riders, such as sacrifice: for example, the requirement that years of study in a madras or yeshiva are necessary for entry and continuation in the community. Prohibitions (such as peculiar dress codes or dietary or Sabbath restrictions) which act as a "tax" on secular consumption also dispose members to increase their association with group members and contributions to the club good.

So the group's social cohesion is explained on the ground that less committed individuals will be screened out. Berman (2003) extends this analysis to terrorism. The key point is that the level of commitment or loyalty which is characteristic of religious sects makes them particularly adept at activities like terrorism. The reason is that such activities are particularly dependent on loyalty: indeed in the case of terrorism, defection or disloyalty by one person can destroy the

project of the whole group. Consequently the religious group, with its high level of cohesion, is particularly suited to the performance of tasks associated with terrorism.

To explain suicide terrorism in particular, Berman and Laitin (forthcoming) extend this model by augmenting the utility function to include terms reflecting either altruism or "the utility of the hereafter", and omit the terms representing the payoff for loyalty in the present world. Thus, in this case, the social cohesion of the group is not sufficient. One still needs to assume that the individual either: (1) believes in the hereafter and that his or her suicide martyrdom will be rewarded in the hereafter; or (2) to be altruistic towards family or compatriots combined with a belief that the suicide bombing will enhance their lives.

This kind of work is extremely valuable in explaining the demand for suicide martyrs. They go far in explaining why suicide campaigns are such effective weapons for certain kinds of organizations to pursue political goals. However, there still remains the question of what motivates the suppliers of suicide. The fundamental problem is that, from the point of view of the individual suicide martyr, the achievement of the goal of the organization represents a pure public good. Whatever the goal of the organization – a national homeland for Palestinians or Kurds, the removal of "foreign" domination by the Indians in Kashmir or the Russians in Chechnya, or the removal of US troops from Saudi Arabia, the IDF from Lebanon, or the Tamils from Sri Lanka[1]– the individual's own contribution to this goal cannot be significant no matter how large his personal sacrifice. Therefore he or she will tend to "free ride" rather than sacrifice him or herself. Consequently, a rational choice explanation of individual participation must look elsewhere to understand the motives of individual suppliers of suicide martyrdom.

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[1]These goals of terrorist organizations are listed in Pape (2002), p. 23

To be sure, there are individualized rewards– a place of glory, the possibility of monetary rewards to the bomber's family, and the possibility of volunteering for the act, but hoping never to be actually asked to do it, thus obtaining the benefits of martyrdom fame without enduring the costs (as described in Ferrero (2002)). Somehow these do not appear to add up to a sufficient motivation to call forth a reliable supply.

The Berman- Laitin paper suggests another possibility which has been much speculated on, namely that suicide martyrdom may be done because the individual believes that God will reward him or her for his actions with the promise of an afterlife. This possibility is so important that I devote the next chapter to discussion of it.

Finally, there is an additional problem which is that the sacrifice and prohibitions which religions use to screen out the less committed implies that high wage individuals tend to be screened out as less reliable, since their options outside the group are better. Yet the evidence from Krueger and Maleckova (2002) does not indicate that suicide martyrs are typically lower wage individuals. The authors amply recognize this point and argue that higher wage individuals would have to make a "credible claim to loyalty", e.g., that agents of the state murdered the claimant's brother". But, in that case, this implies that the martyr is not performing the action out of either altruism towards the next generation or a belief in the afterlife but out of solidarity with his brother, an entirely different class of explanation, which we expand on below.

In sum, one cannot explain the actions of suicide martyrs in terms of altruism or furthering the goals of the group. Yet there appear to be no shortage of would- be- martyrs ready to sacrifice themselves for the goals of certain groups. Why? What motivates them?

One clue to supply is implicit in what has been already said, namely that nearly all of the

research which has been done, including Hoffman (1998), Pape (2002), Crenshaw (1990), Post (1990), or Ricolfi (forthcoming) indicates that suicide martyrs do not commonly act alone but are usually members of groups who "demand" their services. Ricolfi (forthcoming) finds that suicide missions are hardly ever isolated actions by single individuals. "Behind a SM there is usually an organization or one of its local cells, which, as we shall see, finely dose and regulate SM" (Ricolfi (forthcoming, p. 6))

Research into the internal workings of extremist groups has suggested two other things. First, they are characterized by a high level of social cohesion or solidarity. Thus, as Post suggests, "For many, belonging to the terrorist group may be the first time they truly belonged..."(Post (1990), p.31). Secondly, members of such groups usually hold, in common, a set of extreme beliefs. Islam as used by Al Qaeda is not a purely religious doctrine but one that has been intensely distorted to serve the ends of the group (Black (2001), Gunaratna, (2002) Ruthven (2000) ). Some other extremist groups have bizarre beliefs: for example, the Christian Identity movement in the United States apparently believe that the lost tribes of Israel are composed not of Jews, but of "blue -eyed" Aryans", and that Jesus Christ himself was an Aryan (Hoffman, p. 112).

The next section addresses these two features of extremist groups -- their depth of solidarity, and the extremity of their beliefs -- and tries to explain them both.

**3. Trade in beliefs**

In Marc Galanter's (1989) fascinating book on cults, which sums up 15 years of his research on the psychology of charismatic groups, the power of group solidarity is described in the following manner by a heroin user who joined the Divine Light Mission:

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Once I got to know them, I realized they loved me.....When I wanted to take

heroin, or even to smoke [marijuana], I knew they were with me to help me stay

away from it, even if I was alone. And their strength was there for me.....I could

rely on their *invisible hand*, moved by Maharaj Ji's wisdom, to help me gain

control. (Galanter (1989), p. 27, italics added)

Another, fictional, account of intense solidarity is provided by Arthur Koestler. In his

famous novel *Darkness at Noon* (1941), the hero ends by sacrificing the truth and ultimately his

life for the good of the Party.

The other remarkable feature about many situations where solidarity is particularly

intense is the beliefs that people sometimes hold. How is it, for example, that a number of

Americans, mostly members of paramilitary groups, would come to believe the view expounded

in Mark Koernke's 1993 video, *America in Peril*, that "elements within the US government are

working with foreign leaders to turn the United States into a dictatorship under the leadership of

the United Nations." (Karl, 1995, p. 69)?[2]

To summarize, in many extremist groups, two remarkable features are the extremity of

the beliefs and the depth of solidarity. I contend that neither of these two phenomena are

necessarily irrational, and indeed that the key to understanding both of them is that they are

related to each other. More precisely, they are the outcome of a process whereby beliefs are

traded in exchange for solidarity or social cohesion. Thus, Galanter notes that many subjects

experienced a decline in symptoms of psychological distress upon joining the group, and that, in

his statistical analysis of the reasons for this, 37% of this overall decline could be attributed to

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2 This example was suggested in the Introduction to a recent book on extremism (Breton, Galeotti, Salmon and Wintrobe (2002))

an increase in social cohesion (p. 32). While Galanter, a psychologist, does not model this process, the basic elements involved seem straightforward. The person who gives up his beliefs loses something, which could be called his or her true "identity" or "independence of thought" or "autonomy" (following Breton and Dalmazzone in Breton, Galeotti, Salmon and Wintrobe (2002). On the other hand, he or she gains the experience of greater solidarity or social cohesion or "belongingness".

In this chapter I assume, then, that the production of solidarity involves conformity or the acceptance of beliefs of the organization. To sketch a model of how this process operates, assume that an individual is endowed with a certain set of beliefs, and, corresponding to this, a certain identity. If a person agrees to join a group, the price of admission is, in part, that he or she adopt certain beliefs which are sanctioned by the group. Additional requirements might be that he participate in group activities or in some other way demonstrate that he shares in the beliefs and goals of the group.

The organization, in turn, supplies the individual with the sense of belonging to a community, by organizing events or activities which individuals can attend and participate in, meet and get to know others in the organization, and by providing a framework of beliefs which the individual can adopt and identify with. The set of beliefs is common to all members to a greater or lesser degree. From the organization's point of view, the more united the membership is in its beliefs, the greater the willingness of the members to sacrifice their time and energy and other resources in support of the goals of the organization, and the greater the organization's capacity for action or power[3]. The organization often exercises some control over the

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[3] Howitt and Wintrobe (1996) or Wintrobe (1998), chapter 11, provide a formal model of the proposition

information available to the members of the group: hence Hardin (      ) refers to the "crippled epistemology" of extremist organizations, and Geertz their "totalitarian" thought structure (      ): however, note that this aspect of extremist organizations, to the extent that it makes their members more united, increases the organization's power.

There are three further aspects of the process that seem important:

(1) Presumably, in order to be accepted for membership, a certain minimum sacrifice of beliefs and a certain minimum level of participation will be required.

(2) How are the trades enforced? One cannot make a binding contract stating that person $A$ will receive $x$ amount of social cohesion in exchange for his agreement to subscribe to beliefs $y$ and $z$. The reason is not only the issue of enforceability, i.e., determining whether the social cohesion supplied was deficient, or whether A really changed his mind in the ways agreed to. The very making of the contract would imply that neither party was sincere, and deprive A of his social cohesion and the group of knowing that A subscribed to the requisite beliefs. However, this doesn't imply that the trade cannot take place, only that the mechanism of enforcement is more subtle: some proof is required on both sides of sincerity.

The organization's history provides some indication as to whether it typically lives up to its side of the bargain. For the entrant, some demonstration that the person has given up some of his autonomy and identified with the organization may be required. Churches have rituals of "conversion" and complex and sometimes arduous demonstrations of faith. Admission to a youth gang (see Jankowski (1991)) may require "jumping in"-- for a male, that he participate in the commission of a crime, for a female that she sleep with one or more members of the gang.

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that a government's capacity for action is related to the similarity of beliefs of the groups within it. Here

Admittance to the mafia is governed by complex rituals which have a similar purpose (Gambetta (1993), Hess (1973)).  Gunaratna describes recruitment and qualifications for entry into Al Qaeda (Gunaratna (1999, pp.  98ff).  The Italian terrorist Giorgio, writing anonymously (1981,2003), describes in detail the complex and mysterious procedures for entry and advancement into the Red Brigade terrorist group, active in Italy during the 1970's.

(3) Finally there is the vital  element of *leadership*.  Who is it that determines the beliefs of the group? Who is that decides when these beliefs have to be changed? How is the minimum level of participation decided?  Who decides whether  cohesion is given out or withheld?  The point is vital, because it suggests that in many solidary groups, there is a strong element of hierarchy.

In so-called "charismatic" groups  such as the Branch Davidians, the Scientologists, Divine Light Mission and the Aum Shinrikyu, Galanter found that social cohesiveness was tied to a charismatic leader whose flock "revered" him (p. 12). In the Branch Davidian cult, for example, compliance with the leader (David Koresh)'s expectations was promoted by a series of reinforcements.  According to Galanter, these  produced a relief in depression and anxiety to the degree that a believer accepted the group's creed and its rules of behaviour.  By virtue of this relief effect, a member's mood became dependent on the degree of his or her commitment in the group. Indeed, Galanter shows that cults often act like  emotional pincers, promoting distress while providing relief. The consequence was that, as  Galanter notes, "This emotional dependence on the group and its beliefs left the sect members fully responsive to Koresh's demands, which escalated to include beating young boys and engaging young girls in sexual activity"(Galanter (1989), p. 170).

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we are simply extending this idea to any organization.

The main implication of this way of thinking is that a person who holds a belief which appears on the surface to be irrational may not be irrational: the rationality may consist not in the content of the belief, but in the reason for holding it. On this reading, the person who believes there is a UN plot to take over the US government is no more irrational (in principle, if not in degree) than the professor who states to the officials in the administration of his university that his department, more than any other in the faculty, deserves more resources: in both cases, the reason for the belief may be solidarity or social cohesion, not the coherence of the belief itself.

It is simple to formalize the basic proposition of the model, i.e., that social cohesion (solidarity) and conformity (unity of belief) are positively related. To do so, assume, that individuals have utility functions in which both autonomy and solidarity are positive arguments:

**(1)      U=U (A,S)**

where the functions have the usual properties:    $U_a > 0, U_s > 0, U_{aa} < 0, U_{ss} < 0$, and $U_{as} > 0$

Individuals are willing to trade autonomy for solidarity, and the way they do this is by adopting the beliefs demanded by one or more suppliers of solidarity. These suppliers may include religious organizations (organized religions and cults), gangs, political parties and movements, unions and business firms, and other organizations. The "industrial organization" of solidarity is complex because solidarity tends to be produced in the process of working towards some goal or participating in some activity and thus is usually supplied together with the that activity.

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An initial depiction of the tradeoff between solidarity and autonomy for an individual is provided in Figure 1.  The indifference curves correspond to the equation $U=U(A,S)$ above.  The individual maximizes utility subject to a constraint in the form of a production function

**(2)      f (A,S) = 0**

depicted as the production possibility curve between solidarity and autonomy $ES$ in Fig. 1.  The production possibility curve is depicted as having the usual shape, implying diminishing returns to the conversion of autonomy into solidarity and vice versa.

A typical individual will have an endowment point like $e_0$, and will trade autonomy for solidarity by giving up his own beliefs in the manner discussed, ending up at an equilibrium like $E_1$. The rate at which he can trade off autonomy for solidarity depends on the technology available for doing this, as summarized in the production function. Thus churches have a "technology" for conversion involving rituals, dogmas, and ceremonies by which individuals are assisted in becoming believers.  Other organizations may have 12 step programs, identification rituals such as "jumping in" to a gang (as discussed above), and so on.

However, this analysis leaves out something important:  once an individual $i$  has  made the choice of giving up some of his autonomy $A$ in exchange for solidarity $S$, he has given up some of his autonomy and therefore his capacity to choose. For small changes this might not matter but for large ones it obviously does– to some extent he has given up the control of the choices he might make to the leader of the group $L$.  We will see in the next chapter that this gives rise to a very different picture.

A different objection to the analysis above might be that so far, there has been no

discussion of empathy and its relationship to solidarity. Thus, empathetic beliefs and sympathies

for the plight of the poor are highlights of Catholic doctrine, one of the *loci classici* of the

concept of solidarity; equally, they are central to socialist doctrine, perhaps its other major

source.

One way to incorporate this idea might be to modify the utility function to explicitly

include empathy as distinct from solidarity. Thus one could write individual *i*'s utility function as

$U_i = U_i(A, S, C_j)$, where $C_j$ indicates the consumption level of any of the *j* others in the group.

Then empathetic feelings could be represented by $\partial U_i/\partial C_j > 0$, indicating that individual *i* feels

better when the *j* others in the group have more to consume. It seems reasonable to assume that

an increase in empathy would raise the utility of solidarity in the utility function, ie, that $\partial U_s/\partial U_{Cj}$

$> 0$. Moreover, one might assume that the more empathy an individual feels, the smaller the

tradeoff between autonomy and solidarity, ie, the flatter the slope dA/dS of the ES production

possibility frontier in Figure 1. That is, the more genuine caring an individual feels for the others

in the group, the greater the possibility of a disagreement with them while maintaining solidarity

with them. However, some tradeoff will of course still remain.


[INSERT FIGURE 1 HERE]


One example of solidarity in this sense might be the ideal of Christian teaching as

practised by Jesus. He preached concern for others, especially the less fortunate (see, eg.,

Bokenkotter (1977 )). However, as soon as a doctrine such as Christianity is institutionalized

into a bureaucratic organization, the possibility arises of deviance, and practices are instituted to

repress dissent. Otherwise the original doctrine may be lost.  Because of these repressive

practises, over time conformity increasingly replaces autonomous thinking and so over time the

church increasingly fails to adapt.  It  might even be suggested that  "false" solidarity

(conformity) tends increasingly to replace "true" solidarity (genuine caring)[4].  Hence the

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[4]The distinction between true and false solidarity may not be so simple.  Thus, consider another case,  where individuals give to the group, not because they care about it or the individuals within it, but because they expect to get something in return for their gifts (eg, in the case of the church, some might make gifts hoping for the afterlife in return).  The  utility function remains as before (U=U (A, S)), but the individual can also obtain solidarity through making gifts. This suggests that  solidarity can be produced through conformity to the beliefs of the group (giving up autonomy), or through gifts (giving up own consumption $C_i$), as in the production function $S = S (A, C_i)$.  Which is the "true" solidarity? How do you distinguish those who give because they care for the group from those who give because they hope for something in exchange?

Indeed, more typically an individual will be at an interior solution, making a combination of gifts and "giving up" beliefs in the production of solidarity.  This might appear to show that that the relatively rich would give more cash, and the poor "give up" beliefs more, implying that in a sense only the poor would really "believe" in the church's ideals.  However, the poor tend to make a surprisingly high percentage of their income in gifts, mostly to the church (  )

historical evolution of organizations like the catholic church, with its characteristic internal tension between the ideals of the church and its institutional practise, leading to periodic eruptions and protests by dissidents, constant reinterpretations of what the founders meant, and revolts on the part of those who think that the church has lost its way and  who wish to go back to its true doctrine[5].

Even with this simple and basic formulation  we are able to show some implications. Thus, one implication is that social cohesion will tend to be positively related to the extremity of beliefs.  The reason is that if the views of the group are really extreme, people who wish to join will typically have to give up a lot in the way of their original (more mainstream) identity to adopt them.  Hence they will demand more social cohesion in return for adopting them.

Other propositions may be derived if we ask what happens when the price of a belief or of social cohesion changes. One interesting variable here is the relationship between the true preferences of the population and the preferences of the leader.   It seems reasonable to suppose that the closer the true preferences of the group are to the preferences of the leader, the easier it should be to give them up in favour of the leader's preferences.   It follows that the price demanded in terms of loss of autonomy is  lower in such cases, and the outcome should be that the organization's membership is likely to have a more consistent point of view.

Another proposition concerns individuals with "weak" identity or low autonomy.  Our model suggests that such individuals will be giving up less by joining relatively extreme groups

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[5]See, for example Bokenkotter (1977), or Duffy (1997)

than those with strong identities and will therefore be more likely to do so, ceteris paribus.  So the membership of such groups should be composed unusually of people with weak identities.  The process also explains how religiously-based  organizations which deal with social problems like juvenile delinquency such as  Teen Challenge, Straight Ahead Ministries and Nation of Islam can sometimes be successful where government agencies fail: these organizations supply troubled people with social cohesion in addition to direct training or rehabilitation.

However, this analysis leaves out something important:  once an individual $i$  has  made the choice of giving up some of his autonomy $A$ in exchange for solidarity $S$, he has given up some of his autonomy and therefore his capacity to choose. For small changes this might not matter but for large ones it obviously does– to some extent he has given up the control of the choices he might make to the leader of the group $L$.  We will see in the next section that this gives rise to a very different picture.

## 3.    The solidarity multiplier

In the last section we showed that an individual obtains solidarity in part by trading away his beliefs for those of the group, as personified by its leader $L$.  If so,  we can substitute the leader's utility function for $i$'s utility function to the extent that $i$ choose solidarity $S$ over autonomy $A$.

Perhaps the simplest assumption to make about the utility function of the leader is that she cares only about the aggregate level of solidarity of the members[6]:

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[6]In general it seems reasonable to assume simply that the group has some objective Z and that the

**(3)** $U^L = U^L (S)$ **where** $S = \sum s^i$

Presumably the only dimension of the leader *L*'s utility function that is relevant to member *i*'s decision-making is the level of *i*'s solidarity $s^i$. So far as each member *i* is concerned, he can contribute to group solidarity only by choosing more *S*. It follows that we can substitute the relevant portion of the leader's utility function

**(4)** $U^L = U^L (s^i)$

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group leader receives utility from the extent to which the goal is realized, as in

(4)′ $\quad U_L = U_L (Z)$
(4)″ $\quad Z = Z (\sum a_i, \sum s_i, K, L) = Z ( A, S, K, L)$

In this formulation, A and S of the members are productive "inputs' to the goal of the organization along with capital (K) and labour (L). If we assume K and L are fixed for simplicity then the only dimension of choice is the proportions of A or S to use in the production of Z. Thus S might be expected to raise productivity relatively more where the co-ordination of activities is important, as in Alchian and Demsetz (1972)′ team production. On the other hand, A might be most important when the output of the team implies creative thinking. Thus it seems reasonable to suppose that for a university $\partial Z/\partial A$ would be relatively high and $\partial Z/\partial S$ low, and vice versa for a mass organization. For cults, we assumed above simply that (4) $Z = Z (S)$.

for that of the member $U^i$ $(a^i, s^i)$ to the extent that $i$ chooses $S$.  This gives a new utility function $U$

for $i$ where his choices are now only partly his own (to the extent that he chooses autonomy $A$).

The other part of his choices are governed by the leader.  Thus:


(5)      $U = (s/a+s)\ U^L\ (s)\ + (a/a+s)\ U^i\ (a,s)$


where the superscript $i$ on $s$ and $a$ has been dropped for simplicity, and $s/a+s$ is the fraction of his

choices (utility function) which are  solidary, and therefore identical to the leader's choices.

Similarly, $a/a+s$ represents the weight on the "autonomous" portion of his utility function $U^i$.

This utility function may be assumed to have the usual properties: diminishing marginal

rates of substitution and so forth.  However, the leader is  interested in the level of solidarity of

the *group* and in that of individual members only to the extent that it contributes to group

solidarity.  Consequently, an increase in the level of solidarity of only one member will not have

much effect on the aggregate, and therefore $\partial U^L/\partial s^i$ does not decline as rapidly with an increase in

$s^i$ as $\partial U^i/\partial s^i$.  Indeed if the group is not too small it is not unreasonable to assume that the leader's

indifference curves in this space are vertical lines, as shown in Figure 2[7].

Moreover, as i chooses more solidarity, that is $a^i$ falls and $s^i$ rises,  the increase in $s^i$

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[7]It could also be assumed that the leader dislikes individual values which may conflict with those
he wishes the group to follow, i.e., $\partial U^L/\partial a^i < 0$.  In that case the leader's indifference curves in $a^i, s^i$ space
are positively sloping upward lines, reflecting the idea that for him $s^i$ is a "good" and $a^i$ a "bad".  In this
case, as $s^i$ continues to increase and  the weight of the leader's  utility function becomes  sufficiently large,
i's preference for S over A does not decline but actually  increases as S increases, leading to an increase
rather than a decrease in the slope $dA/dS = - MU^s/MU^a$ .  Ultimately, i's indifference curves would
become positively sloped as they get close to the S-axis.

increases the weight of the leader's utility function in i's utility  function.  Consequently the

decline in the marginal rate of substitution of *s* for *a* is less, and the slope of the indifference curve

does not fall as much as it would if i were totally "in control" of his own decision- making.

To see the effects on *i*'s decision making, assume that *i* maximizes utility as described in

(5) subject to the production function of the organization (2).  The first order conditions are:

**(6)**      $\partial U_s / \partial U_a = f_s / f_a$

i.e., that

**(6')**  $$\frac{aU^i_s + s(U^L_s) + (a/(a+s))(U^L - U^i)}{aU^i_a + (s/(a+s))(U^i - U^L)} = \frac{f_s}{f_a}$$

The first term on the top of the left hand side is the marginal utility of solidarity to *i,*

weighted by the autonomous portion of his utility function.  The first term on the bottom of the

left hand side is the marginal utility of autonomy to *i,* similarly weighted

Equation (6') shows how group preferences enter the individual's utility function .  Thus,

the second term on the top of (6')  is the  marginal utility of *i*'s solidarity to the leader, weighted

by the portion of *i*'s utility function which is identical to the leader's .  The third term on the top

shows the marginal gain and loss from the fact that that as *s* rises, $U^L$ replaces $U^i$ in *i*'s composite

utility function *U.*  Similarly, the second term on the bottom of the left hand side represents the

increased weight of the utility function of the leader ($U^L$) in $i$'s composite utility function $U$ as $a$ falls. The larger is $s$, the greater the importance of these terms which represent the values of the group in the individual's preferences.

The term on the right hand side is the slope of the production possibility curve, which shows the technology available to the individual for incorporating increased group preferences into the utility function. The greater the group's capacity to enable the individual to do this, the larger is the right hand side $f_s / f_a$. At an interior solution, of course, the left and right hand sides of (6') will be equal.

An indifference curve corresponding to the utility function described in Equation (5) or (6) and (6') is shown as the dotted line in Figure 1. As can be seen there, the normal tendency for the indifference curves to "flatten out" as $S$ increases due to a diminishing rate of substitution of S for $A$ is compensated for by their tendency to "steepen" as $i$ increasingly adopts his leader's values. Consequently the indifference curves will be steeper than they would be if $i$ could somehow choose more solidarity without substituting his leader's values for his own as he does so. The result is that $i$ chooses a higher level of solidarity ($E_2$ rather than $E_1$ in Figure 1) in the case of an interior equilibrium solution. The difference between $E_2$ and $E_1$ is the result of this solidarity "multiplier".

The intuition behind this result is straightforward: as the individual chooses more solidarity, in order to get it he adopts beliefs and values that are more akin to those of the leader. But, with these new values and beliefs, he finds that he prefers *more* solidarity than he did originally. In order to acquire still more solidarity, again his beliefs and values must change in order to conform to those of the other members of the organization. In turn, with this new utility

function, he wants more solidarity than previously, leading him to change his values  again, which again results in yet a further demand for solidarity, and so on.  An interior equilibrium will result if these effects occur at a sufficiently diminishing rate, as shown in Figure 1.

One need not join an extremist group to observe the solidarity multiplier in action.  I first noticed it (but did not understand it) years ago in the behavior of academic friends (not all economists) when they assumed important administrative positions such as department chair or dean of the faculty.  Within a short time their values seemed to undergo a transformation: previously highly individualistic in many cases, their conversation was now laced with phrases like "the good of the department", the importance of promoting "institutional values", and so on. Their behavior seemed to change as well, as they now began to promote collaborative research projects and "loyalty" to the department.

Of greater importance is the possibility of temporary, rapid increases in solidarity such as those noted by Ricolfi (forthcoming) in his empirical work on Palestinian suicide martyrs.  Ricolfi found that  the desire for suicide martyrdom was often  motivated by revenge or the desire to avenge tragic events such as the death of a relative at the hands of Israeli forces.  Similarly, "revenge" is the classic motive in many studies of solidarity (eg. Gold (2000)).  At the mass level, in Palestine, as in previous resistance movements,  the funeral of some important or tragic figure often becomes the occasion for stimulating revenge.  The solidarity may be temporary, but that is enough to provide a mechanism for stimulating action.

The analysis in Figure 1 is incomplete.  It is easy to imagine that the self-reinforcing process just analyzed leads to a corner rather than an interior equilibrium.  The properties of the corner equilibrium are examined in the next section.

## 4.    The Attraction of the Corner

At very high levels of *S,* i's utility function more and more becomes the same as the leader's, and his values his leader's values. A "corner" solution will be reached if the slope of the indifference curve is everywhere steeper than that of the production possibility curve:

(7)    $\partial U_s / \partial U_a > f_s / fa$

i.e., that

(7')    $$\frac{s(U^L s) + aU^i_s + (a/(a+s))(U^L - U^i)}{aU^i_a + (s/(a+s))(U^i - U^L)} > \frac{f_s}{f_a}$$

Of course, at the corner a = 0, and so *s/a+s* approaches 1, i.e., *i*'s utility function becomes identical with that of his leader. The easiest way to see this is to look back at equation (5). Substituting  a = 0 there gives

(8)    $U = U^L(s)$

This corner solution is depicted in Figure 2[8].

If condition (7) ,(7') or (8) holds,  individual i rationally chooses an equilibrium with  all S, zero A.  His utility function is simply the utility function of the leader $U^L(s^i)$.  The individual

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[8]For the moment, ignore the new shape of the production function (it is discussed next) and note that a corner solution would still obtain in Figure 2 even with the same production function as in Figure 1.

has no independent thought but is completely under the leader's control[9]. His values are

completely those of his leader and he will do whatever maximizes his leader's utility. If the

leader wishes him to commit suicide for the goals of the group, he will do so. Note that he might

do so even if he or she is not at a corner, but close to it, so the views of his leader or the values of

the group contain great weight in his utility function. What is peculiar about the corner is not that

only there is rational suicide possible, but that at a corner, the individual will be particularly

resistant to change. In particular he will be resistant to pressure from outside sources such as

threats or increases in the likelihood of prosecution or the size of the punishment for being a

member of such a group[10]. And he will also be resistant to outside information which is critical of

the group, unless that information comes from the leader. But although small changes will not

cause any change in his behavior, very large changes will cause a substantial movement, as is

usual for corner solutions[11].

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[9]Note that the *leader* does *not* have an equilibrium at the corner $E_0$. Indifference curves like $U^L$ do describe his preferences, but the constraint in Figures 1-2 describes the choices available to a subordinate or member, and is *not* the constraint facing the leader. Hence the equilibrium autonomy and solidarity in Figures 1- 2 is that of a member, not the leader. The leader's equilibrium cannot be described with this apparatus. His or her problem is formalized briefly in footnote 7, The goals of the leaders of extremist organizations were also discussed in more detail in the previous chapter. Hoffman (1998) and Pape (2003) in particular are also relevant to understanding the strategic choices of leaders of terrorist organizations.

[10]Sandler and Lapan (1988) and Enders and Sandler (2002) also consider the case of "fanatical" terrorists, defined as those who do not fear death, and suggest that deterrence is ineffective for such individuals. However, note that the point here is somewhat different: "fanatical" terrorists here are those who appear fanatically *loyal* or *obedient* to the organization's wishes. It is worth noting that sufficiently large penalties *can* be effective, as noted above. Finally, in this model solidarity, even when extreme, is always contingent. To illustrate this point, it is useful to recall that it is often suggested that no group ever demonstrated more loyalty to its leader than the SS to Hitler. Yet, towards the end of the war, when it was obvious that the Nazi regime was collapsing, these people deserted the regime in large numbers (see the analysis in Wintrobe 1998, chapter 13).

[11]External changes which raise the "price" of solidarity would make the production possibility curve steeper in figures 1- 3 (not shown).

This provides a key to policy, as discussed below.

One way to see this point, is to note that although a = 0 at the corner, the slope of $i$'s indifference curve at the corner is not infinity, i.e, it is not a vertical line like the indifference curve of the leader (see Figure 2). Substituting a= 0 into (7)' gives the condition at the corner:

$$\textbf{(9)} \qquad \frac{\mathbf{s(U^L{}_s)}}{\mathbf{(U^i - U^L)}} \quad > \quad \frac{\mathbf{f_s}}{\mathbf{f_a}}$$

The top shows the marginal utility of $s$ to $i$, which is the same as that to his leader. The bottom shows that as $i$ " tastes" a small amount of autonomy a, the gain is his original utility function $\mathbf{U^i}$ minus the loss of the leader's utility function $\mathbf{U^L}$. So even at the corner, where he has no autonomy, he is capable of getting his autonomy back[12].

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12 A similar point holds at the opposite corner, where s = 0. The condition for that case is

$$\textbf{(7)} \qquad \frac{\mathbf{aU^i{}_s + U^L - U^i}}{\mathbf{aU^i{}_a)}} \quad < \quad \frac{\mathbf{f_s}}{\mathbf{f_a}}$$

Even though s = 0, the partial derivative $U_s^i \neq 0$. The numerator shows what would happen if $i$ moved away from the corner. He would gain $U_s^i$ as usual, but in addition his utility function would change: to some extent, he would give up his "own" utility function and substitute that of the leader, as shown by the term $U^L - U^i$. Conformity is the price of solidarity.

Further, even an individual who is at the corner may be extreme, but it is vital to note that *he is not irrational.* He possesses a well behaved ordinal utility function, and is perfectly capable of making choices that maximize his utility in the usual sense. Indeed, his behavior is merely an extreme version of a form of behavior which is extremely common, namely that, in part, he "internalizes" his values from the values of others, especially from those in a position of power over him. To obtain solidarity with the group of which he is a member, he adopts the group's values and beliefs. This is precisely what members of religious groups do when they agree to or "internalize" the values and beliefs of their religion, or what members of ethnic groups do when they subscribe to the belief that they "belong" together in some sense because they have as ancestors people who held similar beliefs, or what economists do when they write papers based on a certain set of assumptions that they share about human nature (e.g., that people are always rational!). The only difference in the behavior of the individual who is in equilibrium at a corner is the *extent* to which he behaves in this fashion. The behavior itself is perfectly "normal" and rational. And all of us are familiar with the internal struggle between doing what is right for the group and doing what is best for one's "self" felt by individuals who are not at a corner but near to it.

Still, the analysis represents a considerable departure from standard economic theory. Can not a more conventional approach explain as much? After all, economic theory does not usually invoke group preferences in this way. It is more common to modify the individual utility function to include altruism, as is commonly done in the economics of the family (eg Becker (    ). Both Azzam (    ) and Berman and Laitin (forthcoming) take this route in explaining suicide martyrdom. But the main problem is the free rider problem. Any "contribution" made to the

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welfare of the next generation by a suicide attack , by say, helping to rid the country of foreign occupation, is bound to be small, no matter how dramatic and effective and destructive that attack is.  Thus the rational approach is to "free ride", since the welfare of the next generation is a pure public good to an individual contemplating suicide martyrdom.   Consequently altruism does not solve the problem of reconciling suicide martyrdom with rationality.

In my analysis there is no free rider problem because the individual has "internalized" the goals of the organization.  Thus it is not altruism but a form of empathy generated by group pressures.  Consequently, I believe that the most promising approach is one that incorporates group pressures into the individual's decision.  This conjecture is bolstered by what by now is a fair bit of evidence that group pressures are important (see especially Ricolfi or Gunaratna).   And the circumstances are such that these are exactly those where group pressures and solidarity may be expected to be important.  Suicide martyr operations are typically ordered, in campaigns which are started and stopped (Pape, (2003 ) Ricolfi (forthcoming).  They are often motivated by revenge or an external threat, are members of organizations which have considerable  control over the information they receive, and they are  screeened, trained and prepared.  Thus rather than focussing on the action resulting from the belief it might be  more plausible to speculate that the belief is the consequence of group pressures to perform the action.  Finally, while a departure from standard practise, the whole point of this book is that there are many problems and circumstances where this departure is most welcome.

**5.    Comparative Statics**

Of course, that an individual could completely or even to a large extent  "internalize" someone else's utility function and become so deeply under her control is still bizarre. How can this take place?  So far, we have described only one  reason for this result – a strong desire for solidarity.  Some other reasons can be described with the help of Figure 2.  As illustrated in the figure, in high- solidarity  groups there is usually some technological discontinuity or concavity  in the production function.  Thus for example, most organizations where solidarity is important have some ritual which requires the individual to commit to it, i.e. religious "conversions" or "jumping in"in the case of gangs or mafiosi.  This makes the loss of A at the initial level of S discontinuous, as depicted in Figure 2.  At the other extreme, where A is initially zero, the curve also displays increasing returns.  The behavior of children provides an illustration.  Thus, one can imagine that children brought up by their parents and initially lacking an identity of their own have to make a dramatic (discontinuous rather than marginal) change in order to get one.  Thus they cannot move from A = 0 in small steps, but need to "revolt" against their parents in order for this to happen. This point implies that from the point A = 0, the production possibility curve has an increasing rather than the usual decreasing slope, i.e., initially $\partial^2 a/\partial s^2 > 0$, as also depicted in Figure 2.  In turn, this also increases the likelihood that an individual who demands high solidarity will end up at a "corner".  This struggle for identity is a well known feature of adolescence.  In a similar way, individuals who come under the spell of a charismatic leader may need to be "de-programmed" in some way in order to return to "normal" society.

The analysis so far identifies people who might rationally get their identity almost entirely from membership in the group, including the possibility of committing suicide for the cause, as a rational choice.  The basic fact that might lead someone in that direction is a desire for a very high

level of social cohesion or solidarity.  So the first question one might want to ask is, who is

particularly likely to want very high levels of solidarity?  Perhaps the most important category of

such people is those who do not have much S from other sources, i.e., people who are lonely and

isolated and who therefore turn to the group for friendship and belonging-ness.  One implication of

this is that young people who are looking for solidarity from a gang would possibly be willing to

join and participate in gang activities even though monetary returns are low.  This might possibly

explain the extremely low values of life estimated for gang members by Levitt and Venkatesh

(2000).  Another implication is that in societies where social cohesion is difficult to get because

social services are not well provided and there are few well- functioning organizations which

provide it, e.g., in so - called "failed"states, the demand for solidarity from those organizations is

particularly likely to be high.

The analysis also points to a second characteristic: those for whom, at the margin,

autonomy has low value.  Presumably this would include people whose autonomy hasn't worked

for them, i.e., people who see themselves as "losers" or failures[13].  Another, related characteristic is

a lack of a solid identity: those who lack one have relatively less to sacrifice in giving up their

beliefs for those of the group.  Thus young people without an established identity would be

expected to be particularly vulnerable.

Are the poor particularly likely to be among those who especially seek high S, i.e., is there

some reason to think that solidarity is income- inelastic?   From the economic point of view,

perhaps the  most straightforward way of looking at this matter is that the value of a life is

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[13]Some causes of low self - esteem are discussed in R. Baumeister, "The Self" chapter 15 of
Gilbert, Fiske and Lindzey's *The Handbook of Social Psychology.*

positively related to potential lifetime earnings, and the larger these are, *ceteris paribus,* the more reluctant an individual would be to sacrifice his or her life.[14] This would provide the connection between poverty and the propensity to become a suicide martyr so often asserted in the popular media. However, note that matters are not so simple: if the demand for solidarity were sufficiently income - elastic, this could reverse this prediction. Indeed, studies of the relation between income and the propensity for suicide martyrdom essentially find no relationship to income or education (Krueger and Maleckova 2002)).

While both the desire for solidarity, the relative absence of fixed beliefs, and the lack of a secure identity point to a negative proclivity between age and the potential to become a suicide bomber, the old have less to lose by taking this route (the remaining value of life gets smaller with age), and so the effect of age remains ambiguous. However, there seems to be doubt that in fact terrorists are predominantly young people. This suggests that either the vulnerability of beliefs or the insecurity of identity dominates the economic factor of the value of remaining life.

With respect to price elasticity, if the equilibrium is at a corner, small changes in the cost of solidarity (in terms of autonomy) would not change behavior. But note that a sufficiently large change in price will have a truly dramatic change in the level of solidarity demanded, producing an interior equilibrium and reducing the demand for solidarity considerably. This would happen if the curvature of the production function were to remain as shown in Figure 2, and the change in price (not shown) simply tilted it up and to the right from the point $E_2$.

The dilemma for public policy towards groups which threaten public welfare is posed starkly if we consider those members of the group for whom the corner solution (7) holds. Such

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[14]I am indebted to Isaac Ehrlich for this point.

individuals are resistant to change, and no policy is likely to be very effective. Thus, threatening, attacking, assassinating, bombing, and other policies which can be interpreted as changing the "price" of the group activity will often produce no change in the position of the individual within it at all. However, if the change in price were sufficiently large, it might produce the desired movement. Alternatively, attacks from "outsiders" may engender *more* solidarity within the group by the "security dilemma" mechanism: thus they may be counterproductive. But this problem does not arise for group members at the corner, whose solidarity is already maximal.

Another reason is the unifying force of an external threat, which can cause the individual to identify more with the group and act to bind it together. Indeed, as Posen (1993) showed for ethnic groups, an increase in cohesion among one possibly threatening ethnic group can make the threatened group more afraid, and this fear stimulates cohesion among the members of the threatened group in turn[15]. Moreover, a spiral can be set in motion with the "security dilemma" arising with cohesion or solidarity instead of armaments as the operative variable: increased cohesion within group $j$ stimulates cohesion within group $i$, which stimulates further cohesion within $j$ in turn, and so on. When this threat is or can be made present, therefore, initial moves in the direction of larger solidarity could be amplified in a process of positive feedback. An example of this dynamic is the rapid spread of nationalism in Serbia under Milosevic, which responded to and in turn stimulated the same behavior in Croatia under Tujman ( see chapter 8 for more detail). A similar dynamic characterizes the interaction between terrorist groups and their targets. Both terrorism and the response to it typically provide casualties and these provide plenty of opportunities for the emotionally binding experiences leading to the desire for vengeance, which

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[15]Some evidence that external threats promote group identification is reviewed in Huddy (2003).

substitute for the emotional binding within the group that characterizes cults.

**5.      The structure of supply: alternative organizational forms**


The types of groups discussed so far include cults and other organizations where

individuals  often participate together in group activities.  However, these are not the only types of

groups which can generate solidarity.  For example, if the preferences of the members on important

issues are relatively homogeneous to begin with, then solidarity may be intense even if the groups

do not meet very often if they have other means of communication and a leader with whom they

identify.

In general, the better the technology or "production process" with which a group enables an

individual to convert A into S, the more its members will  choose high solidarity .  As there is often

no capital (except communication devices like computers and physical space to meet in), the main

determinant of technology is organizational structure.  In what follows we first summarize some

organizational characteristics of cults which have been only implicit in the preceding discussion

and then consider some other organizational forms.

i) cults

The cult form is characterized by small size[16], relatively fixed number of adherents, who in

turn are in constant contact with each other, while relatively cut off from other sources of

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[16]In turn this helps to explain why public goods are often supplied by small groups even though
their benefits may be non - excludable. It is more difficult for an individual in a relatively small group to
free ride because it is easier for the small group to give or deny solidarity according to an individual's
contribution.  So the small group, unlike the large one,  has a way of enforcing contributions through the
provision of the excludable private service of  solidarity.

information, and often led by a charismatic leader (see Dawson (1996), Galanter (1999) or

Appleby (1997)).  This implies  some  special features of the technology for converting A into S.

First, inside the organization the individual is typically grouped with other, like - minded

individuals, who are also involved in the transformation and subject to the same group pressures.

Less committed  individuals may also be screened out[17] through the sacrifices which are often

demanded of the group, as discussed by Iannaccone (1992).  In cults, even bizarre beliefs or

practices may appear "normal";

Another important feature of the production process which affects the level of solidarity

chosen is that it often takes place slowly or in small steps, as  in Stanley Milgram's famous

"obedience" experiments, and as Galanter observes for many cult groups.  Thus, initially, recruits

are usually exposed to relatively innocuous ideas and only as their involvement deepens are they

treated to the full panoply of ideas, paranoid conceptions and philosophical notions which

characterize the group's ideology. [18]

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[17]Thus $S_{min}$ in Figure 2 could be the minimum level of sacrifice demanded of a group member.

[18]Akerlof (1991) models Milgram's experiments with a "near- rational" model of obedience.  The subjects in Milgram's experiments were indeed often horrified, *ex post*, at what they did (Milgram (1974)).  Galanter provides evidence that cults and other groups where solidarity is high typically

ii) netwar and Al Qaeda

Many of the new generation of terrorist groups are alleged to have more fluid organizational forms, with forms of organization, doctrine and strategies attuned to the information age. This idea is often loosely expressed in the popular press. A precise formulation can be found in Arquilla, Ronfeldt and Zanini (in Lesser, et. al. (1999)), who suggest that "Islamic fundamentalist organizations like Hamas and the bin Laden network consist of groups organized in loosely interconnected, semi-independent cells that have no commanding hierarchy" (Arquilla et. al., pp. 56-7). Indeed in the archetypal case, they form an "all channel " network. The all channel network pictorially resembles a geodesic dome, in which each node is connected to each other node. There is no central leadership, no "precise "heart" or "head" which can be targeted (Arquilla et. al. p. 51).

In turn, the capacity of the design for effective performance depends on the presence of

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"brainwash" individuals in a series of steps, by initially coupling social cohesion with relatively innocuous ideas and only slowly introducing more radical ones. All of this suggests that individuals with accurate *ex ante* knowledge or expectations that in joining a group they will end up giving their life for it might decide not to join. On the other hand, the equilibrium in Figures 2 or 3 does not rely on any form of biased expectations or irrationality. Suicide martyrdom is widely reported today, and for people joining certain groups it must be obvious that there is a good chance that that is how they are going to end up. So it seems unwise to deny the possibility of completely rational suicide, fully expected prior to joining the group, while acknowledging that "near- rationality" of the type suggested by Akerlof might make suicide martyrdom more likely for a larger class of people.

shared principles, interests and goals-- at best, an overarching doctrine or ideology that spans all nodes and to which the members wholeheartedly subscribe. "Such a set of principles, shaped through mutual consultation and consensus building, can enable them to be äll of one mind" even though they are dispersed and devoted to different tasks–the members do not have to resort to hierarchy–"they know what they have to do"" (Arquilla, et.al. p. 51).

How can the model of trade in beliefs apply to these forms of organization? There appear to be three issues: First, it seems the members already share beliefs; Second, how can they trade beliefs for solidarity if the members of the organization are dispersed and are not available to provide solidarity by hugging one another? Third, if there is no hierarchy, who makes the organization's decisions and how are they communicated?

To address these issues, note first that with respect to Al Qaeda, a more accurate characterization based on the evidence of its structure that we have as presented by Gunaratna (2002) is that it is "cellular" rather than "all channel":

"Al Qaeda's global terrorist network strictly adheres to the cellular (also known as the cluster) model "composed of many cells whose members do not know one another, so that if a cell member is caught the other cells would not be affected and work would proceed normally." (Gunaratna p. 57)....... Cell members never meet in one place together; nor do they in fact know each other; nor are they familiar with the means of communication used between the cell leader and each of its members."(Gunaratna, p. 76).

Some evidence that reinforces Gunaratna's surfaced with recent capture of the top Al Qaeda operative Khalid Shaikh Mohammed, of whom it was reported that "Hundreds of captured Al

Qaeda operatives said during questioning that they had had a recent conversation with (Mohammed).........Often, according to intelligence and law enforcement officials, the captured suspects had no knowledge of each other but they had all been in contact with Mohammed."(New York Herald Tribune March 4, 2003, p. 6)

It is worth pausing for a moment to understand the implications of the cellular structure for how the organization functions and how it could be targeted by anti - terrorist policy. Each cell operates under the command of a leader, who communicates information upwards to his handler in turn. At the end, for operations where there are survivors, a report is sent upwards and the operation is evaluated by the senior leadership. "Horizontal" communication between cells is strictly forbidden, and in any case the individuals in one cell do not know the individuals in other cells. Now, one reason often advanced for this structure is to preserve secrecy and to lessen the chances that if one branch of the organization is discovered the whole organization is destroyed. But there is another implication: *could there be a structure more conducive to authoritarian (hierarchical) control?*[19] In effect with this structure it is only possible to communicate "vertically" (with superiors). Horizontal communication is minimized, and with it the possibility of any challenge to the leadership, or of organizing actions which feather the nest of subordinates but which are not in the interests of the leadership.

In addition, what is minimized in this loose structure is *formal* hierarchical structure. But that does not mean that the organization is not authoritarian: quite the opposite. To illustrate, the Nazi party and the Nazi government, while it inherited a formal hierarchical structure from the

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[19] Breton and Wintrobe (1982, 1986) evaluated the efficiency of organizations in terms of the size and intensity of vertical as opposed to horizontal networks. On this approach, the cellular structure has much to recommend it in terms of the efficiency with which subordinates carry out the wishes of superiors. This and other economic approaches to bureaucracy are surveyed in Wintrobe (1997 ).

Weimar regime, tended to bypass it in favour of the more informal bureaucratic structure of the Nazi party.  At one point, Hitler declared that only the "will"of the Fuhrer, not the laws of the regime formally  signified the intentions of the regime and the wishes of the government[20].  Descriptions of al Qaeda "as a fluid and dynamic, goal-oriented rather than rule-oriented organization (Gurantana p. 58) could equally well be made of the Nazi party structure (see for example Arendt (1951)).  But does that imply that the Nazi party was not authoritarian?

Some evidence of direct hierarchical control over operations is also provided by Gunaratna.  For example, he notes that  "Osama directly coordinated important operations such as the September 11 attacks, and while as -Banshiri and his deputy Muhammad Atef worked on the ground in Somalia, Osama provided the strategic leadership for the East African embassy and USS *Cole* attacks, and reviewed the plans at every stage, pinpointing on photographs of the targets where the explosives - laden truck and boat respectively should be positioned."(p. 77)

Traditional hierarchical relations are prominent in the *modus operandi* of Al Qaeda, as illustrated by the following account:


"After the execution of an operation at the place and time specified, a full report identifying the strengths and weaknesses of the attack is prepared and sent to the head of Al Qaeda so that its impact can be gauged and the effectiveness of future operations improved.  For instance, against his assigned role, the performance of each individual Al Qaeda cadre is evaluated for the purpose of rewarding or reprimanding him for his conduct:  "Those deemed weak or lazy were dismissed" (Gunaratna, p. 75).

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[20]See Breton and Wintrobe (1986) or Wintrobe (1998), chapter 13.

Just as in cults, Al Qaeda also practices screening and sorting, training and indoctrination. (Gunaratna, p. 81, 98)). With respect to ideology, Islam, and the promotion of it via the destruction of the anti Islamic order provides a common doctrine or set of beliefs that binds the members together, just as ethnicity or religion or communism have done for other solidary movements. Gunaratna emphazises the stringent emphasis on training and retraining"(Gunaratna, p. 70). But "religious instruction ....is considered far more important than battlefield or terrorist combat training" (73). The organization also attaches great importance to propaganda, in particular the need for Muslim youth to reflect on the state of their societies (Gunaratna, p. 88). Finally, Gunaratna suggests that "Although other terrorist groups driven by Islamic ideology, such as Hamas, prepare its fighters to die for the cause, no other group has invested so much time and effort as Al Qaeda in programming its fighters for death. (91)".

However, Islam as used by Al Qaeda is not a purely religious doctrine but one that has been distorted to serve the ends of the group (Black (2001), Gunaratna, (2002) ). In particular, the religious doctrine is used to help motivate action:

"The role of the *fatwa* and Islamic study committees is to justify Al Qaeda's actions. When a recruit is inducted, he agrees to pursue Al Qaeda's agenda and execute any order provided a *fatwa* justifying the action is cited, and Al Qaeda's religious scholars on the *fatwa* committee issue these Islamic rulings. They also preach and propagate Al Qaeda's model of Islam and ensure periodic indoctrination of the rank and file (Gunaratna, p. 84)

The next chapter examines the role of religion in promoting suicide terror, a subject which is often misunderstood,  in more detail.  To first sum up the argument in this section on the structure of Al Qaeda, it  appears to be that of a cellular (and  hierarchical) cult based on a distorted version of Islamic ideology which is used to further its goals.  The evidence on the importance of training and propaganda and on the fact that the Al Qaeda version of Islamic doctrine is highly peculiar and specific to the organization suggests if its  members are indeed  "all of one mind" , this is an effect, not a cause, of the organization's operation.  The structure is informal but that does not mean it is not hierarchical.  At the same time, the structure is obviously fragile.  With horizontal communication among the cells cut off to the point where those in one cell do not even know who the people in the other cells are, and all communication directed upwards through a single channel, the organization would appear extraordinarily vulnerable to the loss of a few key senior people.

7.      **Conclusion**

In this chapter I developed a simple model to explain how it is possible for a person to rationally commit suicide to further the goals of a group.  In the model, an individual gives up autonomy for solidarity, that is  he trades his beliefs for a feeling of belonging-ness to a group. Small trades of this type do not result in unusual behaviour and indeed, most of us engage in such behavior all of our lives.  However, at large levels, such trades imply that a person is more and more giving up his identity for that of the group, perhaps as personified by its leader, and losing the capacity to make decisions based on values other than those of the leader.  Consequently, the choice of larger levels of solidarity may drive a person close to or at a corner solution where her values are

entirely those of the leader.  Such a person is capable of rational suicide for the goals of the group.  Some implications of this view are that small price effects will not change the behaviour of the individual in question, and even very fairly large ones might not cause the person to revert to her old identity since  he has given it up in exchange for solidarity.  However, very large changes will cause a very substantial change, as is typical in the analysis of corner solutions.

Although such slavish devotion to the group is typically associated with cults, modern terrorist groups seem capable of producing such individuals even though they are relatively large and dispersed.  The structure of Al Qaeda is not only hierarchical but cellular, and this facilitates vertical control under these circumstances.
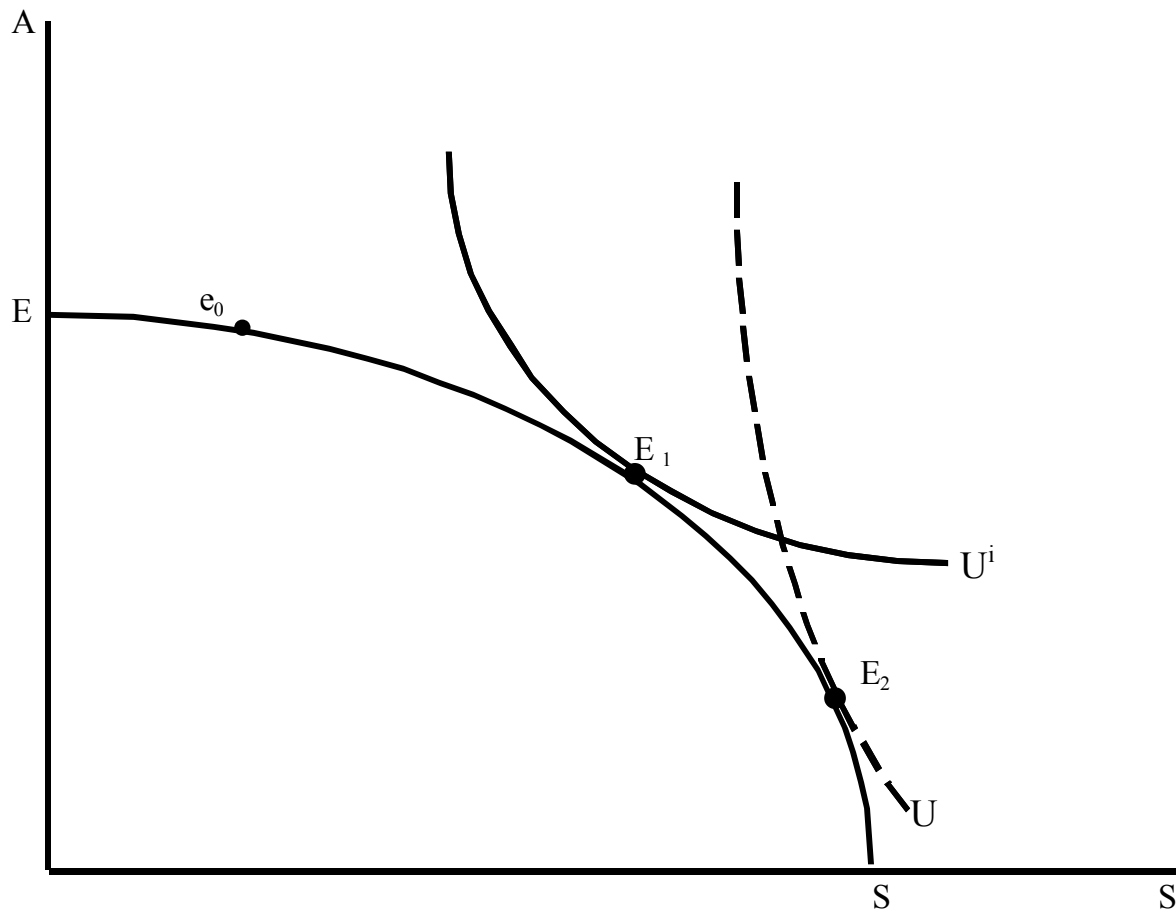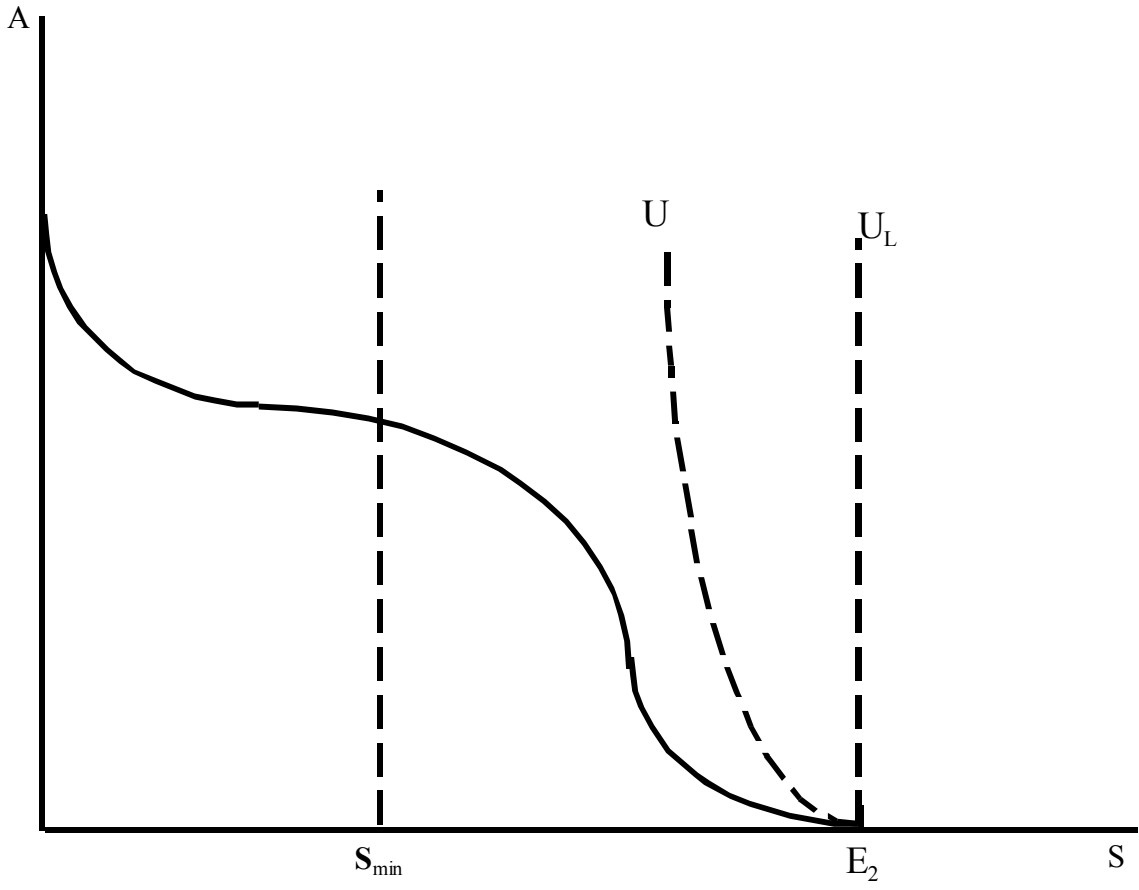
Figure 1

Figure 2