



Apparent Intended Lethality: Toward a Behavioral Model of Intention to Harm in Single Issue Bombing Campaigns

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Abstract

This paper sets out the concept of Apparent Intended Lethality (AIL) with respect to terrorist bomb attacks and explores its measurement through objective behavioral indices. The concept is explored through investigation of single issue bomb attacks carried out by animal rights and anti-abortion activists in the United States (US). In comparison to studies of international terrorist action, single issue terrorism (SIT) has received comparatively little attention in the academic literature, and therefore the domestic threat posed by SIT extremists is not well established. This paper investigates the behavioral intentions of two subsets of US SIT bombers and Multidimensional Scalogram Analysis (MSA) is used in order to reveal actual strategies that are used to maximize or minimize casualties. The strategies revealed in this analysis indicate that SIT bombers' approaches to causing casualties (or not) can be modeled according to three independent dimensions of AIL; device strategy, targeting and pre-event warnings. The actual strategies used to promote or limit loss of life have received no attention in the literature to date and these results are unique in their empirical assessment of the terrorist strategies used to avoid or maximize casualties. The model can be used to measure the assumed intentions of an individual terrorist or campaign and can measure cumulative and compensatory AIL strategies. In this sample, a wide variety of AIL is displayed from hoax attacks that have no potential to harm and are therefore designed to cause fear and disruption, through to the most potentially lethal attacks with secondary bombs in occupied workplaces given no warning.

Introduction

1.1 Apparent Intended Lethality

Although bombings are widely recognized as the most frequent form of terrorist attack, no large scale systematic analysis of operational details and the specific behaviors involved has so far taken place. As Jackson and Frelinger (2008) observe, the approach that terrorists choose to adopt defines the potential magnitude and reach of each attack. They found that not only are explosives the most frequently used terrorist weapon, but they are also one of the most versatile, being used to strike a variety of targets, from specific individuals, through vehicles, to larger structures. Despite increasing our understanding about how explosives are used, Jackson and Frelinger do not set out to explore the subtleties of terrorist behavior. The current research aimed to do just that and set itself a theoretical challenge – by empirically studying variation in what actually happens in terrorist bomb attacks, it aims to define attacks in terms of their AIL, that is, the extent to which they intended to cause casualties.

It is often reported in the media that terrorists aim to cause as much loss of life as possible. Indeed much has been written on 'new terrorism' and the assumption that terrorists today have moved to mass casualty terrorism as a strategy (see Crenshaw 2006 for a review). However, analysis of terrorist events worldwide shows that there are wide variations in intent to harm. At the most simplistic level, we can look at the form of terrorist action – the kidnap and negotiation over a single individual is clearly quite different to blowing up an airliner. It may be assumed that bomb attacks are intended to cause the most casualties of all the strategies, but here again we see some interesting variation, from bombing to cause indiscriminate loss of life versus effective and destructive economic sabotage with no casualties.

Lethality is frequently cited in terrorism research but is usually taken to mean the number of people killed or injured in an attack. As such, it is really a measure of outcome. In psychological terms, it is of interest to examine the AIL of an attack; attacks may result in more or less casualties than the terrorists had planned for. This paper sets out to define AIL in terms of the behavioral choices made by the bombers, and presents an empirically derived model of AIL in terms of the actual strategies used to promote or limit loss of life. The model allows an examination of

qualitatively different terrorist strategies, and potentially, for quantification of the intended severity of the attack. The different strategies used by terrorist groups are illustrated with data from two differently motivated US single issue extremist campaigns.

1.2 Single Issue Terrorism

Relative to studies of international terrorist activity, little academic attention has been directed toward domestic terrorism in the United States. Nonetheless, the resurgence of the right-wing militia movement in America has been followed by what has been described as a “remarkable rash” of hate-driven US domestic terror incidents in recent times (Potock, 2009, p. 4). The Southern Poverty Law Centre (SPLC) (n.d.) list 75 ‘major terrorist plots and racist rampages that have emerged from the American radical right in the years since Oklahoma City’ (p1). Whilst the militant hate groups are starting to receive some academic attention, domestic terrorism is not comprised of right-wing ideologies alone; and so-called single issue, or ‘special interest’, extremists contribute significantly to the domestic terrorist threat in America today.

The single issue terrorist threat is posed by a number of assorted, diverse groups with differing motivations and ideologies. The common feature that links special interest groups is the focus on one specific political or social issue, rather than desire for widespread change. Single issue terrorists are therefore “committed to a specific cause and focus on the resolution of particular issues” (Vohryzek-Bolden, Olsen-Raymer, & Whamond, 2001, p. 140), notably radical environmentalism, animal rights or the criminalization of abortion (e.g. Davidson Smith, 1998). Of these three key movements, radical environmentalism has received the majority of academic attention, often confounding the separate, though compatible, animal rights movement under the same ‘eco-terrorism’ umbrella (Taylor, 2003). This tendency is problematic, as the two movements are ideologically distinct, and therefore have different goals and motivations, which may manifest differently in attack strategies. For example, Lemanski and Wilson (2009a) found that only 2.6% of a sample of animal rights bombings involved suspected collaboration with environmental groups, all of which victimized animal ‘exploitation’ practices rather than environmental targets. It is important then that violent animal rights extremism is treated as an entity in its own right, as opposed to an awkward limb of eco-terrorism. The anti-abortion movement is similarly tangled with other nuance, and anti-abortion, or ‘pro-life’ extremism has received similarly little exclusive academic attention. The current research aims to examine the actions of those involved in bomb attacks relating to these two distinct motivations.

Despite the important variation between single issue groups, there are also some noted similarities, affording the single issue umbrella more substance than a label that categorizes terrorist motivation. Single issue extremist movements can generally be characterized as networked groups and individuals that work together as part of a ‘leaderless resistance’, lacking in hierarchy or formal structure. This is exemplified by the most prominent violent animal rights organization, the Animal Liberation Front (ALF), who encourage individuals to perform acts of direct action on the ALF’s behalf (e.g. see Animal Liberation Front, n.d.(a)). ‘Membership’ is not membership in the strictest sense, but instead an affiliation that is used to claim attacks in the name of an animal rights ideology. There are, however, guidelines that must be followed, and those who break the rules are not, by definition, ALF ‘members’ (Animal Liberation Front, n.d.(b)). The animal rights movement is also characterized by a number of splinter ‘groups’, varying in violence levels and attack frequency. The militant animal rights movement is not the only single issue campaign to operate in such a manner. The Southern Poverty Law Centre (SPLC) supports this view, noting that the structure of the ALF is:

“[...] remarkably similar to that of the so-called Army of God, a violent anti-abortion ‘group’ that is ‘joined’ by simply carrying out an attack and claiming credit.

Although there is no real 'membership', these groups can appear large because every attack undertaken in their name generates significant publicity" (SPLC, 2002, p.2)

Smith, Damphousse, and Roberts (2006) found that, compared to other types of terrorism, single issue perpetrators engaged in less preparatory behaviors, confirming the "unorganized" and "uncoordinated" approach to violence that would be expected from a leaderless resistance (p.36). Smith and colleagues also observe that single issue extremists have adopted this leaderless approach in similar forms; for instance, ALF publishes attack details on their website, and make suggestions for future targets for would-be members, whilst violent anti-abortionists have documented recommended 'hit-lists' of abortion clinics and practicing physicians for those wishing to act. Given the apparent structural similarities in special interest groups, the current research also aims to compare the nature of strategies and behaviors of individuals belonging to differently motivated movements that fall under the same, single issue umbrella.

1.3 Single Issue Terrorism and 'Violence'

In recent years, the challenge of defining 'terrorism' has been met with such controversy that definitional discussion has formed a niche of its own in the literature. Although terrorism research lacks a universally recognized and accepted definition of terrorism, the concept is presently best captured by a checklist of sorts, defined by a number of qualities that are thought to be important for an act to be classified as 'terrorist'. Of these qualities, there is a particularly important characteristic that has proved to be a point of contention in some single issue movements. In order to satisfy the majority of 'terrorism' classifications, an act must involve violence or the threat thereof (e.g. see Hoffman, 2006). Monaghan (2000) notes that 'violence' is an ambiguous term; its usage can be "somewhat arbitrary", the term is value-laden, and is in need of clarification. As such, a number of special interest groups have justified their rejection of the terrorist label on the basis of this ambiguity. Such groups claim to encourage only techniques of 'economic sabotage' that result in property damage. Despite the destructive weaponry strategies often employed in such attacks, the organizations in question tend to reason that the acts are 'non-violent', and indeed oppose actions that do result in casualties. Best and Nocella (2004) contend that it is impossible to "hurt", "injure" or "abuse" a non-sentient being that is devoid of awareness or ability to feel pain (p.32). Best and Nocella's reasoning exemplifies the perspective that pure economic sabotage is not 'violent', and should not be labeled as such. In this respect 'violence' is determined by the target and not by the act itself. Other authors agree that property destruction cannot be branded as 'terrorism' without the added component of *human* harm (Teichman, 1989, cited in Monaghan, 2000). Nonetheless, terrorist strategies are also defined by their intention to cause fear in order to affect change, which would certainly include violent attacks on property (Wilson & Lemanski 2010).

Kenney and Reuland (2002) distinguish between anti-abortion direct actions in terms of demonstrations, non-physical harassment, civil disobedience and violence. They state that "violent attacks against people include both threats and intimidation, as well as actual acts of arson, bombing, acid attack, assault, stalking and murder" (p.357), implying that tactical *behaviors* form the basis of 'violence' rather than the *target*, be it sentient or structural. Acts of bombing, arson and vandalism are also categorized as 'violence' by the National Abortion Federation (NAF) regardless of the intended target, alongside definitive acts of violence to the person, such as assault and battery, and attempted murder. Despite this strongly contested violence debate, there are a number of single issue extremists that re expressly willing to cause physical bodily harm and admit to doing so. In such cases it is unlikely that a 'violent' or 'terrorist' agenda could be denied.

Practically speaking, the distinction between vandalism and terrorism is becoming increasingly difficult to qualify (FBI, 1999). Such ambiguity complicates analysis of the terrorist threat

in America, and can lead to confusion about investigative lead and jurisdiction (FBI, 1999). Given the apparent intention of some groups to cause economic sabotage rather than casualties, and the express willingness of others to violently instigate harmful attacks, together with the quandary of classification, the notion of who ‘intends’ to do what is a particularly complex and uncertain issue in special interest extremism. Whether groups actually intend to cause harm, or casualties, is of utmost importance in addressing the threat of special interest extremism, and developing effective measures for counter-terrorism.

1.4 AIL in Single Issue Terrorism

Second guessing extremist intentions can be problematic without express communiqués detailing group objectives. In the absence of such statements of intent, group credos and manifestos can offer some insight into whether perpetrators are likely to orchestrate deliberately harmful attacks or not. As previously noted, there are certain groups like ALF that expressly refuse to accept responsibility for attacks that inflict harm on humans or animals. Instead, ALF and other single issue groups rely heavily on economic sabotage tactics, that financially and practically paralyze businesses from functioning, at least temporarily, by damaging commercial premises and/or specialist equipment. Barabash, an ALF spokesperson, describes property damage as “a legitimate political tool called economic sabotage, [...] meant to attack businesses and corporations who are profiting from the exploitation, murder and torture of either humans or animals, or the planet.” (cited in SPLC, 2002, p.2). Although Barabash remarks that to label economic sabotage as terrorism is “ludicrous”, ALF itself claims to “inspire and incorporate” many further animal liberation efforts, which they admit include “groups such as the Animal Rights Militia, who unlike ALF defend and use violent tactics (such as personnel bombs delivered through the mail)” (Animal Liberation Front, n.d.(c)).

Certainly, the violent animal rights movement are not driven solely by members of ALF, and there are more radical, ‘breakaway’ groups that are openly willing to employ extreme tactics that ALF are not. The Animal Rights Militia (ARM), for example, are known to operate against a different set of principals, that suggest a theme of retribution and revenge, stating that, ‘animal abusers had been warned long enough. Animals had suffered long enough-the time has come for abusers to have but a taste of the fear and anguish their victims suffer on a daily basis’ (Animal Liberation Front, n.d.(d)).

Likewise, the animal rights group the Justice Department (JD) have committed unashamedly violent, deliberately harmful attacks over the years, including protracted letter bombing and razor blade rigged hate mail campaigns. The ALF (n.d.(d)) report that the JD favor a different course of action that removes the “barriers” of violence and non-violence, illegal and legal, instead focusing on what works. The JD assured that they “won't be asking anyone to stop messing with animals and will make no excuses for [our] violent intervention - they've had it too good for too long” (Animal Liberation Front, n.d.(d)). The SPLC (2002) claims that ‘spin off’ organizations like the JD and ARM allow the ALF to maintain their claim of comparative “ethical purity”.

In the violent anti-abortion movement, activists destroy medical facilities/property and barricade clinic entrances in order to cause significant disruption, disturbing normal working conditions and resulting in financial losses to the abortion industry. Whilst such economic sabotage is less specifically emphasized as a tactic in anti-abortion literature than in animal rights readings, it is an important aspect of anti-abortion-led civil disobedience. The Army of God (AOG), a prominent organization in the violent anti-abortion movement, have authored an elusive ‘manual’, which is known to give a detailed ‘how-to’ guide on a variety of attack tactics, including clinic sabotage (Davidson Smith, 1998). Although potentially disruptive, such strategies do not imply genuine intent to cause physical harm.

Although the violent anti-abortion movement was once characterized by strategic operations of economic sabotage, tactics have since escalated with the adoption of more dangerous attacks like bombings, arsons and execution-style assassinations that are indisputably deadly (see for example, Juergensmeyer, 2000). The National Abortion Federation (NAF) has collated incidents of clinic violence and disruption in the US and Canada for many years and incidents of violence including murder, attempted murder, bombings, and arson (to name a few) certainly appear to be on the rise. Reverend Michael Bray, a convicted violent anti-abortion extremist linked to the AOG, revealed to Juergensmeyer (2000) that he believed Christianity gives him the right to use force in order to protect the unborn. Such 'force' includes not only the destruction of property that facilitates abortions, but the execution of those who make abortion possible, including clinic physicians and other employees (Juergensmeyer, 2000). Although the most prominent of violent anti-abortion organizations in the US, the AOG does not appear to work on the premise of specially formulated guidelines. Unlike ALF, there are no known rules or boundaries to abide by, and it seems that the ultimate goal is to stop abortions, at any cost.

Regardless of any declaration of well-meaning intentions, it would be unwise to take all group manifestos that renounce harmful attacks at face value. Terrorist groups require a certain degree of public sympathy and support in order to be successful (see for example McCauley & Moskaleiko 2008). It is possible that organizations that claim to be against harmful attacks might deliberately misrepresent their intentions to retain public sympathy. Whilst propaganda graffiti and smashing windows are unlikely to result in bodily harm, more intense and powerful tactics, such as arson and bombings, must carry a certain degree of risk. Although lethality might not be intended, the decision to choose a method that carries with it the potential for human harm implies a willingness to gamble. The SPLC (2002) note that by stating that they refuse to accept responsibility for harmful attacks, ALF implicitly acknowledge that person-oriented violence is an anticipated consequence from the direct actions they promote.

2. The Present Study

Despite the revival of academic interest in extremism over the past decade, terrorism remains a challenging area of investigation due to the clandestine nature of perpetrators as well as the classified quality of comprehensive intelligence. The empirical investigation of terrorist intention is especially problematic, as, in the absence of very specific communiqués, or interviews with terrorists themselves, exact intentions are difficult to identify. Furthermore, what is stated as an intention may not be what is actually intended (e.g. Mickolus 1987). Careful behavioral analysis, however, has proved to be useful in understanding terrorist action in previous studies, for example, in hostage taking (Wilson 2000), and in bombings and assassinations (e.g. Wilson, Scholes & Brocklehurst 2010). In the present study, three dimensions of AIL are explored; those relating to the targeting employed, the chosen device strategy and the use of pre-event warnings.

(a) Targeting Strategy

In earlier studies, Lemanski and Wilson, (2009a; 2009b) have found that target selection behaviors interact with attack schedule (the time of day the attack occurred) to define the potential lethality of a bombing. Clearly, if a bomb is designed to detonate during peak working hours in a busy office it is more likely to cause casualties than if detonated in the same location in the middle of the night. Likewise, the bombing of a private residence is more likely to cause injury or fatality during the night while the occupier sleeps, than in the daytime when they may be out at work. The timing of the attack then, is not only important in analyzing targeting strategy, but is inextricably linked to the resulting lethality of the action, and might be used in conjunction with target selection in order to gauge the bombers' intention to cause harm.

In this earlier research, the authors established a model of targeting behaviors based on a sample of attacks conducted by international animal rights ($n=155$) and anti-abortion extremists ($n=94$). They found that a quarter of international animal rights ($n = 21, 26.3\%$) and approximately half of anti-abortion extremists ($n = 18, 54.5\%$) (where time schedule data were known) chose to engage in potentially non-lethal strategies, targeting unoccupied locations, such as a workplace during hours of closure when premises are assumed to be empty. Such strategies specifically target property rather than people, and indicate an intention to cause widespread destruction as opposed to casualties. This type of economic sabotage against a workplace fulfills several purposes including making an example of the target business/industry, instilling fear in employees and clients alike, and destroying equipment and tools thereby preventing practice, at least temporarily. If specific individuals were the target of such 'ecotage' (economic sabotage), these strategies could effectively act as 'scare tactics', which would be extremely personal and might frighten individuals into relinquishing their 'exploitative' role, practice or pursuit, because of fear for personal security or family safety.

In the majority of animal rights ($n = 59, 73.8\%$), and roughly half of all anti-abortion cases ($n = 15, 45.5\%$) (where timing data were known), however, activists targeted working environments during traditional working hours and residential properties during leisure hours, representing potentially occupied target locations which is indicative of more intention for casualties. Generally speaking, these potentially lethal strategies maximize the likelihood for physical injury by targeting a busy location, and imply an elevated intention to cause harm that striking an unoccupied location does not.

Although this model was derived from an investigation of *targeting* strategy alone, it illustrates that behavioral interaction is vital in order to adequately assess group intention. In light of these findings, the present study seeks to advance knowledge of tactical, behavioral approaches that are adopted when perpetrators intend physical harm, as well as revealing any strategies for maximizing, or minimizing AIL. The present study extends the examination of targeting AIL in relation to two further measures that can be used to manipulate outcome in terms of increasing or mitigating the potential for casualties to occur.

(b) Device Strategy

Jackson and Frelinger (2008) observe that "[t]he specific weapons technologies groups choose for attacks define the scale and scope of their violence" (p.2) and indeed, the intended scale of lethality of an attack is naturally somewhat dependent on the weapon used. For example, a sniper assassination attempt is not only unquestionably intended to cause harm, it also implies a specific effort to target a single individual, compared to the deployment of a hoax explosive device that has no physical potential to harm anyone, but might instead be intended to induce fear and psychological distress in a large number of people. Like in any type of terrorist movement, single issue extremists adopt different weapon strategies for different purposes.

Explosive devices have been consistently employed by terrorists for over a century, and continue to be the most popular choice for the contemporary terrorist (Jackson and Frelinger 2008). In this respect, it is possible that single issue terrorist bombing campaigns are the most characteristically 'terroristic' of all anti-abortion and animal rights' violence. Bombing campaigns used by single issue terrorist groups represent the greatest threat of casualties from SIT action and they have certainly been amongst the many types of terrorist to adopt explosives as a 'tool' to effect societal change (Garrison, 2004). Further, the study of bomb attacks allows the models developed in the current research to extend to international terrorism (discussed later).

Strategically speaking, there must be certain tactical measures that increase or decrease the likelihood that a bombing will result in casualties; or else either pure economic sabotage could *never* be achievable by a bombing, or *all* bombings would result in physical harm. It would be paradoxical

and extremely unconvincing for self-styled 'non-violent' groups, like the ALF, who insist they do not intend harm to engage in bombings if there was no way to minimize harm caused by explosives. By controlling for the choice of weapon then, it will be clearer if any specific behavioral strategies are adopted to manipulate AIL in bombing campaigns.

c) Pre-event Warnings

A warning preceding an attack may be issued by contacting the target building, the authorities or another independent body (such as a newspaper). On the surface, a warning given before the attack appears to be an attempt to minimize casualties by alerting the target occupants and allowing a safe evacuation. There are some complications with the study of warning which will be discussed later, however for the purposes of the current investigation, warnings are simply examined in terms of whether or not they were issued.

3. Data Collection

Since it is doubtful that comprehensive intelligence held by government agencies will ever become publically accessible on the grounds of national security, terrorism researchers must obtain data through alternative sources. Whilst there are several unrestricted and extensive databases recording terrorist acts, rarely do they contain the level of descriptive detail required for in-depth behavioral analysis. Moreover, single issue attacks do not appear to consistently satisfy the inclusion criteria required to appear in such databases.

In the present study, detailed descriptive accounts were sought from quality press coverage of extremist bomb attacks. Such news reporting holds more behavioral detail than found in existing terrorism databases, which appear to be more oriented towards the fine points of 'fact' rather than providing thorough narratives of events. Principle archive sources used included the *LexisLibrary* and *InfoTrac Customer Newspapers*, which were examined through numerous careful search terms in order to elicit as many relevant incidents and reports as possible. Where an attack was noted but press coverage was ambiguous or vague, additional online searches were conducted in order to fill in gaps created by missing data where possible.

The most significant limitation with this type of research, which is reliant on open-source secondary material, is the absence of complete and exhaustive details of each attack. Some larger attacks, or attacks by better known organizations, for example, might attract more plentiful and exhaustive reporting than unsuccessful bombings, or those by lesser known groups. Another limitation is the unknown degree of accuracy of information that is available in press reports. Nonetheless, a number of important studies on terrorism have been conducted using data of these kind and the authors always note that findings with implications for policy or security should be validated against additional information known to the security services (see for example, Wilson 2000). The current sample exclusively includes bombing attacks, including fire-bombings but not simple arsons, by perpetrators with an animal rights or anti-abortion agenda. The scope of the initial data collection was worldwide, in order to place US action within a wider context. The subsequent data analysis, however, will focus on US attacks in order to provide a more detailed account of these forms of domestic terrorism in America.

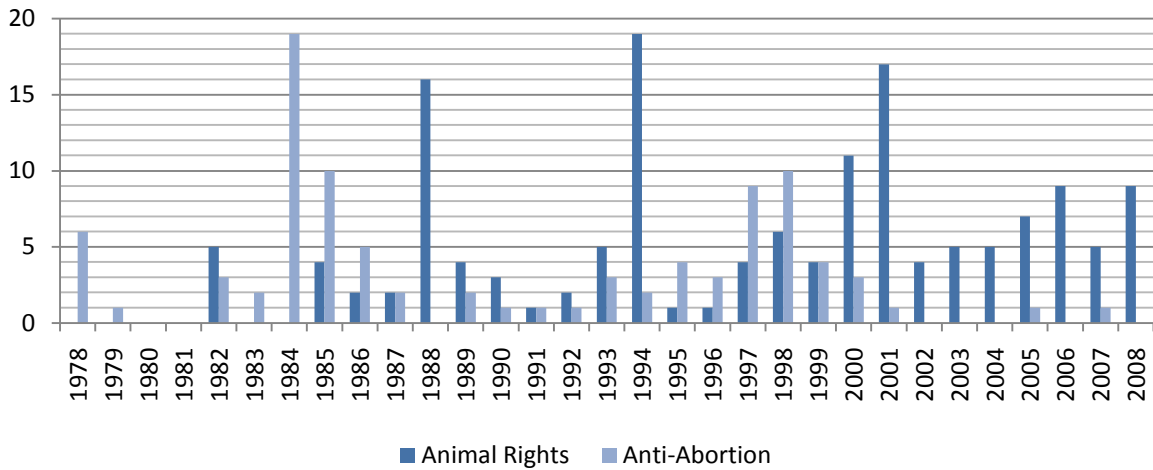
The data were collated in order to compile an original database detailing single issue bombings. In spite of the wealth of information that can be gained by analysis of open source data, some accounts are inevitably vague and missing data remain in places.

4. Prevalence of Attacks

4.1 Worldwide Data

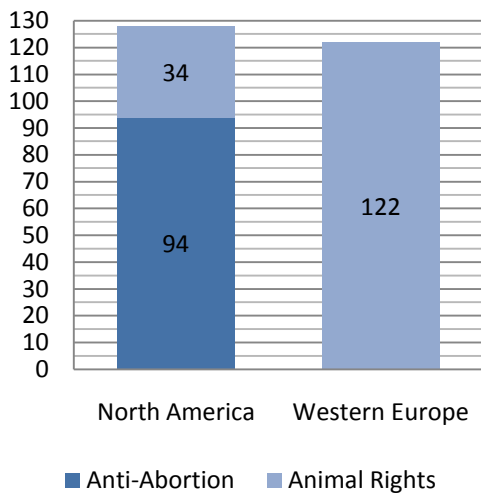
A total of 250 single issue terrorist (SIT) bombing attacks were identified, including 94 anti-abortion bombings that took place between 1978 and late 2008, and 156 animal rights bombings that appear to have begun at a later date, between 1982 and late 2008. Figure 1 illustrates that both types of single issue extremism peak and decline over a number of years. For anti-abortionists, the first real peak in activity appears to have occurred in the mid-1980s, declining until the 1990s, when attacks became more frequent and peaked again in 1998. Following 1998, anti-abortion attacks have decreased considerably. Although animal rights bombings appear to have commenced a few years after anti-abortion ones, they certainly tend to peak more frequently (1988, 1994, 2001), and seem to be increasing towards the present day, rather than declining. Interestingly, the two types of single issue bombings appear generally to peak alternately, and not at the same time.

All attacks occurred in the US or Western Europe (see Figure 2); anti-abortion bombings were only found in North America, and the majority of animal rights bombings occurred in the United Kingdom ($n = 111$), followed by North America ($n = 34$), and other Western European countries including the Netherlands ($n = 4$), Italy ($n = 3$), Sweden ($n = 2$), Ireland ($n = 1$) and Switzerland ($n = 1$).



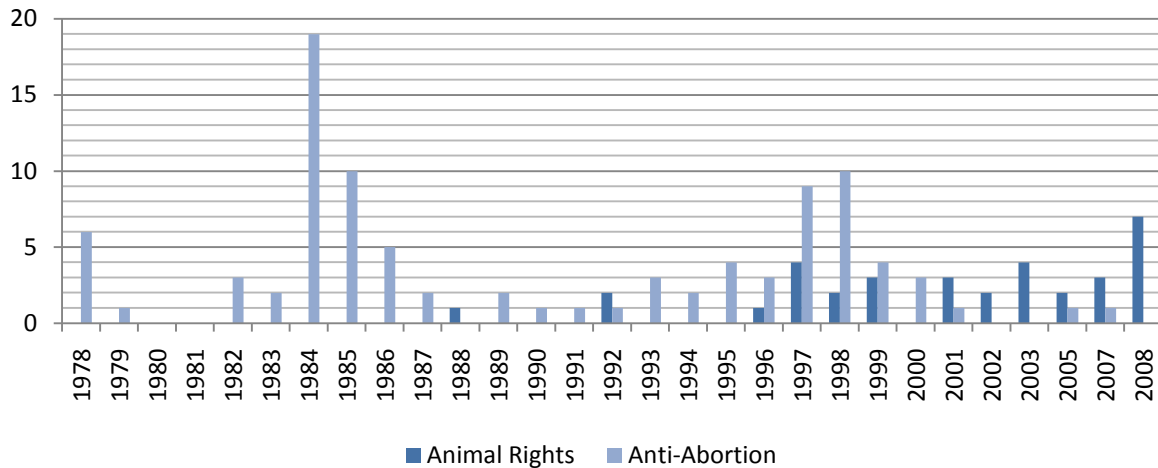
* $n = 151$ (five attacks occurred during unknown years)

Figure 1. Worldwide Single Issue Bombings over Time



*North America includes Canada and Mexico for the purpose of this study

Figure 2. Geographic Location and Attack frequency of Single Issue Bombing



*n = 128: US attacks only

Figure 3. US Single Issue Bombings Over Time

4.2 US Data

The present study will focus on unraveling the domestic threat posed by single issue terrorists exclusively in the United States ($n = 128$). All anti-abortion attacks in the sample occurred in the US, between 1978 and 2008, peaking in the mid 1980's and mid-to-late 1990's (see Figure 3). Animal rights bombings appear to be a slightly more recent phenomenon, occurring in America between 1988 and 2008, but becoming more frequent in recent years.

5. Behavioral Coding

The qualitative, descriptive reports of single issue bombing incidents were transformed into categorical data in order to enable further analysis. Using this approach, discrete behaviors and actions were extracted from the source articles and assigned a dichotomous code, according to a reliable coding dictionary. Each variable represents a single behavior, and was assigned a numerical indicator for each incident, depending on whether the behavior did occur (2), or did not (1). Note that where information is missing it is coded as not having occurred although it is possible that it was just not reported in the accounts accessed. Use of such a coding scheme means that each bombing can be behaviorally represented as a row of data comprised of 1s and 2s, known as a 'profile', which reveals what happened in each attack.

Table 1 Behaviors Indicative of AIL		
Concept	Variable	Description
Device Potential /Strategy	Hoax Device	Absence of a genuine bomb, hoax device present
	Detonated Device	Genuine bomb present and detonated/ignited
	Multiple Devices	Multiple bombs present
	Secondary Device	Secondary bomb deliberately targets first responders
Occupation of Target	Work Hours	Bombing occurred in traditional working hours (0700-1859)
	Leisure Hours	Bombing occurred in traditional leisure hours (1900-0659)
	Workplace*	Bombing occurred on commercial (workplace) premises
	Residential*	Bombing occurred on private residential property
Forewarning	Warning	Perpetrators issued a specific warning prior to the attack

*Location variables are known to interact with time schedule to indicate whether or not target is occupied (Lemanski and Wilson, 2009a, b): due to this interaction, these variables are not included in MSA but are 'mapped on' following the analysis

Table.1 Behaviors Indicative of AIL

Following codebook/database development and consultation of existing literature, a number of variables that were suspected to be indicative of animal rights and anti-abortion extremists' intended level of lethality were highlighted. These behaviors were initially analyzed using exploratory analyses to help eliminate behaviors that are not related to the concept under study. The remaining behaviors, which are thought to contribute to the degree of AIL in a bombing attack, were included in the present analysis (see Table 1). These behavioral indices will be discussed in terms of their potential ability to manipulate the lethality of an attack.

(a) Occupation of Target

In terrorist bombing campaigns careful consideration of timing schedule is fundamental to ensure the best chance of achieving intentions. As previously discussed, if a bomb is designed to detonate during working hours in a busy office environment, it is probably more likely to cause casualties than if detonated in the same place in the middle of the night, whilst a bomb at a private residence is more likely to inflict harm during the night, as opposed to during the day when the occupants may be out at work or school. The timing of attack then can be used in combination with the target location to measure intention to cause physical harm (Lemanski & Wilson, 2009a; 2009b). Naturally, we cannot be certain that this principle stands, as offices may be occupied by night staff or security guards out of work hours and people may still be present at home targets during the day. Nevertheless, it gives the best indication we have of whether the target was intended to be occupied.

Due to the manner in which the attack schedule is known to interact with the target location, inclusion of both sets of variable in the analysis would complicate the development of the model, making it difficult to interpret and extract other behavioral patterns. As we already know how time and target interact, it is possible to run the analysis with one set of variables (we have chosen attack timing) and to 'map' the target locations onto the resulting model as an 'external variable', in order to illustrate this facet of AIL. Attack schedule is measured in terms of traditional working hours (0700-1859) and leisure hours (1900-0659). These working hours were generously extended to cover seven days a week, given the nature of the majority of targets (i.e. clinics, universities, laboratories), whose active trades do not cease at the weekends. Target type is classified as either commercial (workplace) premises, or residential property.

(b) Device Potential and Device Strategy

The most fundamental indication of whether or not a bombing attack is intended to be harmful is surely the presence of a genuine device. In some 'bombing' incidents, the act merely involves a tangible, but fake device that is technically harmless and has zero potential to cause injury. These hoax attacks might be effective at instilling psychological distress, but, in isolation, represent attack strategies that are definitely not intended to cause casualties. In this analysis, hoaxes where no dummy device was present at all are not included but this possibility can be incorporated into the final model as discussed later.

All other bombings, however, involve a genuine explosive or incendiary device that represents a certain risk of causing physical harm, even if it was not directly intended to. Nevertheless, genuine bombs are most deadly if they successfully explode or ignite. A successful detonation is therefore indicative of serious intent to harm, as a failed or prematurely defused device might imply a certain lack of expertise, practice and commitment, or indeed a last minute decision to abandon the operation in the case of remote-controlled devices. For this analysis, only devices that detonated or ignited in part or in full were coded as 'detonated'. It is acknowledged that devices that were defused may not be indicative of intention on the part of the bomber but the preparedness of the authorities. Nonetheless, 'diffused' is included for completeness and in view of the fact that this may interact with the variable 'pre-event warnings'.

Given the importance of a successful detonation in intent to cause casualties, there are certain measures that single issue bombers have been found to take in order to ensure ignition of the device, thereby mediating the shortcomings of the unpredictable and often unreliable bomb. In order to limit the potential for device failure, some perpetrators incorporate multiple bomb strategies into their plans. Quite simply, the more devices there are, the likelihood that at least one will successfully detonate is increased. Cases that involved two or more devices were coded as multiple device incidents. This is a simple tactic to increase the potential for success, or wider destruction, and as such represents a strategy that is apparently planned to be more lethal than a single bomb attempt, given the relative danger that an increasing number of devices poses.

Further, AIL can be dependent on *how* any extra devices are utilized in the attack. Perpetrators have been known to employ additional bombs tactically, considerably raising the potential to cause casualties. Such strategies are referred to here as a 'secondary device', which describes a tactical approach to bombing involving the priming and detonation of an initial device, used to lure first responders to the scene, or to catch evacuated victims. Often first responders are security and law enforcement officers as well as bystanders, who are then subjected to a second, often more forceful bomb which is specifically intended to harm the gathering crowd. This is a particularly malevolent method of maximizing casualties, seen in some international terrorist attacks, that capitalizes on official and public willingness to help, and is apparently intended solely to boost the potential for casualties and lethality.

(c) Pre-event warning

In a number of single issue bombings a specific warning was issued prior to the attack. At face-value, alerting the target population of danger indicates that the perpetrator may be less inclined to cause mass casualties, anticipating some sort of safe evacuation ahead of detonation. The alert of a bomb implies some degree of 'mercy' in intentions, although warnings can be tricky to quantify, as there seems to be a fine line between a warning and a threat. In this analysis, only warnings that specifically applied to subsequent attacks were coded as present.

There are further complications with regard to warnings. In a study of warnings issued by ETA and the IRA, Wilson (2010) found that not all warnings were 'good warnings', raising the issue of whether they act to mitigate casualties at all. As demonstrated in Figure 4 below, in the majority of attacks, ETA and the IRA issued no warnings. In 15 cases the warnings were characterized as successful in that they resulted in the safe evacuation of the area. However, six cases were warnings which were received in time but thought to contain not enough information to be successful, and six cases contained good information but were not received in enough time. A further 35 warnings were thought to contain neither enough information nor enough time for a successful evacuation. These evaluations are, of course, rather subjective and the definition of success depends on the eventual outcome, which may relate to a number of other factors. In addition, the order of the regions in Figure 4 implies that the lack of time or information on the part of the bombers is a negligent oversight rather than a malevolent attempt to mislead the authorities. It is unlikely that we can unpick what is going on with respect to warnings without access to data that is not in the public domain. Nonetheless, it does highlight the problems with taking warnings at face value and has indicated some important directions for understanding not just the presence of warnings but the *nature* of those warnings in terms of their real intentions. For the purposes of the current investigation we will assume that the warnings given were intended to be accurate and helpful.

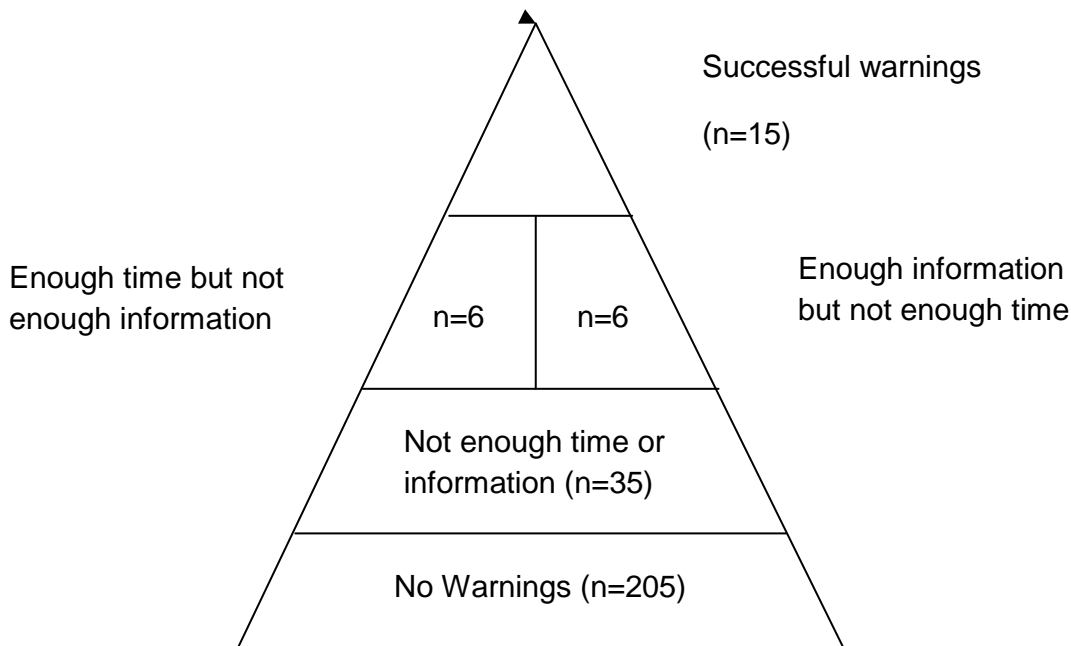


Figure 4. Schematic diagram illustrating the nature of warnings issued by the IRA and ETA (taken from Wilson 2010).

6 Multidimensional Scalogram Analysis

The data were analyzed using Multidimensional Scalogram Analysis (MSA), a multidimensional scaling (MDS) procedure suitable for uncovering structure in qualitative data. MSA is generally used as an exploratory tool to understand the relationships between data cases, variables, and variables and cases, and is particularly valuable for theory formulation and the development of models based on empirical data. The MSA program analyses the profiles of the cases, and generates a 'solution' where each profile, representing one or more incident, is plotted as a point in Euclidean space.

In this case, the closer together the points appear, the more behaviorally similar those bomb attacks were, and the further apart the cases, the more different. Unlike many forms of MDS, the distances in the plot are not generated from correlations but rather created by regional distinctions (see Wilson 1995). This means that, if successful in representing the data, the MSA plot can be partitioned according to the presence and absence of each variable in the analysis, in clear overlapping regions, one for each variable in the analysis. The MSA output includes a series of 'item plots', one for each variable (behavior). These plots are the same configuration of points as the original solution but on each plot the points are marked according to presence (2) or absence (1) of the variable coding. The researcher then divides the plot into two regions (in this case) to represent a shaded area of behavior presence and an unshaded area of behavior absence. Therefore, in the subsequent plot diagrams, shaded regions represent attacks where the behavior in question occurred.

In combination, the seven variables under analysis yield a seven digit profile for each bombing case in the dataset. By coding the behavioral information from reports in this way, the profile describes exactly which behaviors that are indicative of AIL happened in which attack. To

reiterate, if there are any underlying patterns to the data, the plot will be neatly divisible into behavioral regions. By making these divisions, we can see how behaviors that indicate AIL overlap, co-occur, or otherwise appear in isolation, which facilitates data modeling. The MSA solution generated by this analysis is illustrated below, in Figure 5.

The 19 separate points on the plot are representative of 19 unique profiles. Although there are 128 cases in this analysis of US single issue terrorism, many bombings share identical behavioral profiles and appear as a single point on the plot. This in itself indicates that combinations of behavioral indices of AIL are somewhat structured, that is, not all combinations are used. In order to reveal how this structure fits together, the solution must be interpreted, by partitioning the plot according to each variable (behavior). In combination the regions illustrate exactly how behaviors interact. In these plots, the shaded area represents those cases where the variable as coded as present.

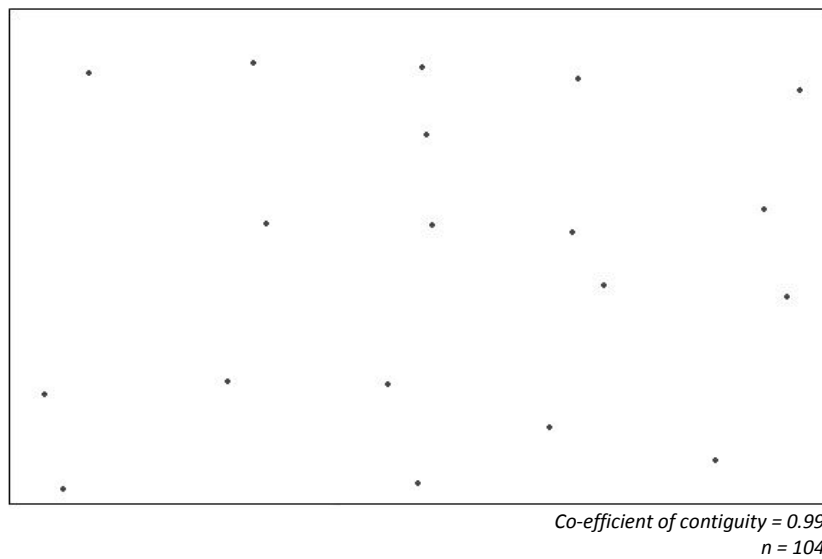


Figure 5 MSA Plot of for all AIL variables in US SIT Bombings

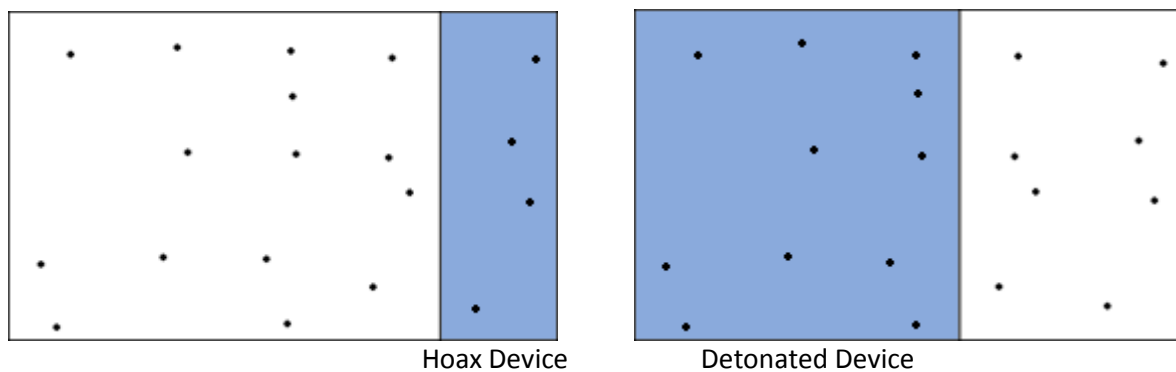


Figure 6 MSA Plot of Device Potential and Device Strategy

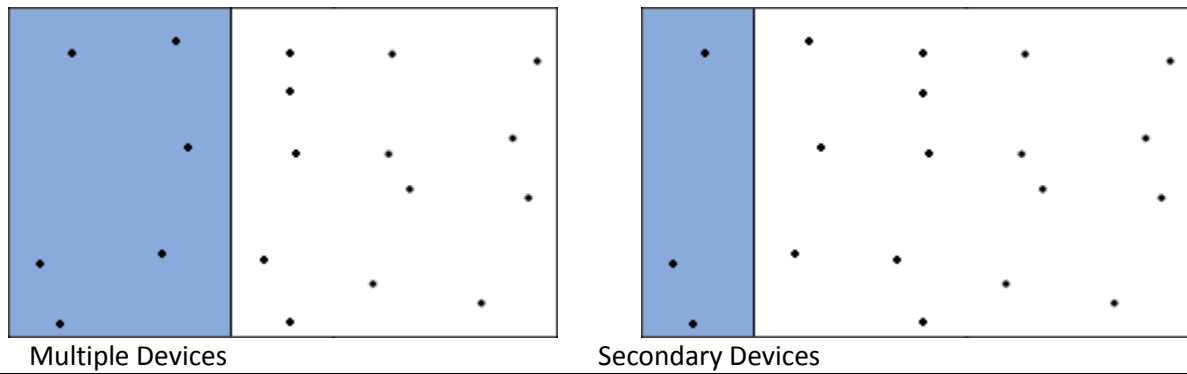


Figure.7 MSA Plot of Device Potential and Device Strategy

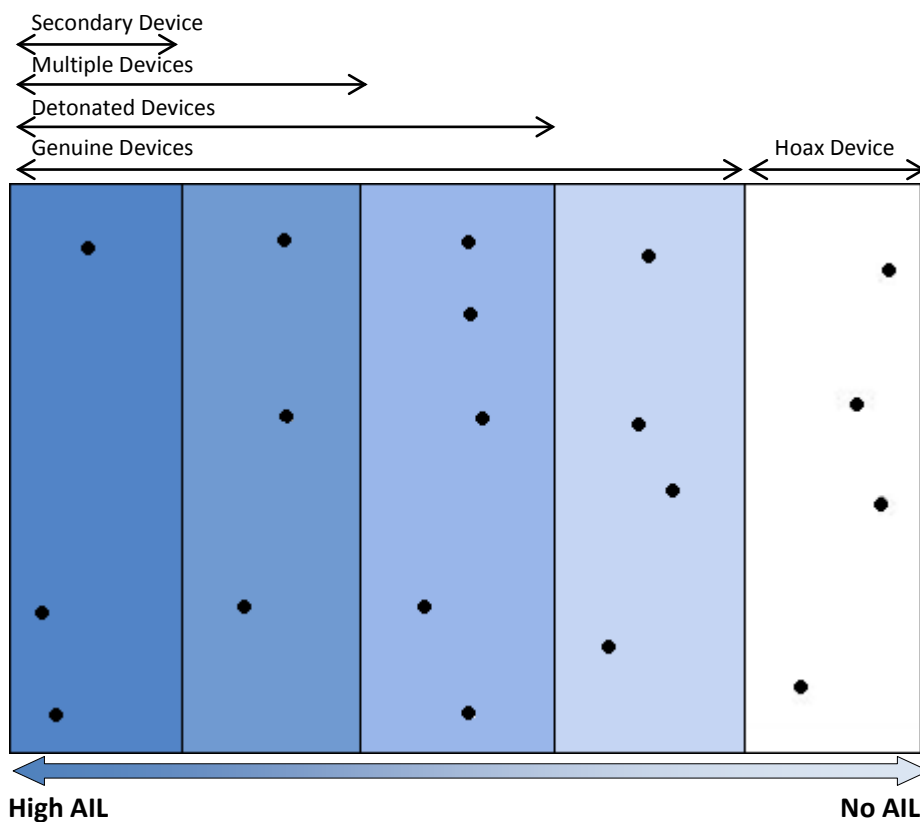


Figure.8 MSA Plot Divisions: A Scale of AIL in SIT Bombings

6.1 MSA: Device Potential and Device Strategy

In terms of device potential, the MSA solution implies a simple cumulative scale, where the single issue attacks in this sample occur at all levels of device strategy AIL. Item one in Figure 6 illustrates that attack profiles where the ‘bombing’ utilized a hoax device (see shaded region) can be separated from all other attacks along the vertical dimension, falling towards the far right region of the plot. Correspondingly, item two in Figure 6 illustrates that all bombs that successfully detonated or ignited occupy the entire left hand side of the plot. The lack of regional overlap indicates that, predictably, there is never a detonation in hoax attacks. Careful inspection of the regions illustrated

in Figure 6 reveals that there is a small gap between the dividing lines of the 'detonated' and 'hoax' profiles. This region represents bombings where a genuine bomb either failed to detonate or was prematurely discovered and defused.

Incidents adopting measures intended to maximize the success and potential of detonations by employing more than one device can be divided along the same, vertical dimension, towards the left of the plot (Figure 7). The MSA solution indicates that, as a precaution to ensure at least one bomb successfully detonates, multiple bombing strategies are extremely effective as all known attacks using multiple devices fall within the 'detonated' region¹ (compare item one in Figure 7 and item two in Figure 6). Additionally, all bombings that employed a specific, 'secondary' bomb designed to maximize casualties fall within the 'multiple' and 'detonated' plot regions. Predictably, in order to embrace a secondary bombing strategy, there must necessarily be more than one actual device, thus maximizing potential for detonation as we have found.

The MSA solution therefore, can be partitioned along the vertical axis in terms of device strategy variables. The division of these attack behaviors in one dimension reveals the first dimension of AIL in the form of a cumulative scale, (illustrated in full in Figure 8), whereby fake devices at the far right of the plot indicate zero AIL, through genuine but unsuccessful devices, to devices representing a moderate AIL. Further, higher-AIL perpetrators might employ multiple bombs and sophisticated, calculated tactical weapon strategies at the left of the scale, suggestive of the highest device-related AIL. It seems reasonable to label the extreme-right end of the scale as 'zero' or 'no' AIL, rather than 'low' AIL, as the presence of a fake device does not imply any genuine attempt to cause physical harm. Any steps taken towards the left of the scale indicate increasing AIL, culminating in maximum AIL (on this scale), which is labeled as 'high' AIL, due to the multiple casualty/detonation maximization strategies involved.

6.2 MSA: Target Occupation

Although analysis of strategic device variables has already revealed a scale of behaviors in AIL, there are other measures that can be taken to manipulate the dangerousness of an attack. The MSA plot can be divided by attack schedule, as illustrated in Figure 9, which shows that single issue bombings occurring in traditional working hours appear in the bottom third of the plot, and those that happened in leisure hours in the top third. When these divisions are overlapped onto the same plot (as in Figure 9) a gap between the regions is revealed, which represents attacks that occurred at an unknown time. Previous studies have already shown that single issue bombings occur at all times of day (e.g. Lemanski & Wilson, 2009a; 2009b), and it is the interaction of attack timing with target location that is thought to determine AIL, as this combination indicates whether or not the scene of the bombing is likely to be in use. In order to assess whether or not a target was in use, all residential attacks have been mapped onto the plot, indicated by a home icon in Figure 10. As the target location variable was not included in the actual MSA, each profile point cannot distinguish between a workplace and residential attack. This means that the abode icon identifies where on the plot all *residential* bombings fall, but it does not mean that *all* attacks represented by that profile point are residential. All the attacks that fall under the remaining points on the plot are exclusively commercial bombings.

The four profiles that identify residential attacks only represent a total of six bombings, as the vast majority of US single issue attacks in this sample target commercial locations ($n = 122$). From target interaction with attack schedule, it is apparent that a number of single issue attacks involved a residential bombing during leisure hours, when the occupants might reasonably be expected to be present ($n = 5$), representing a high-AIL targeting strategy. The remaining residential attacks occurred at an unknown time, and there were no residential attacks during traditional working hours, implying that when home-based bombings do take place, they are apparently

¹ With a single exception; there is one case where the outcome of a multiple bomb attack was unknown.

intended to harm as they target potentially occupied, rather than empty homes. Figure 9 illustrates that single issue extremists tend to target commercial premises in both working and leisure hours. In 38.3% cases that happened at a known hour (that fit the model), perpetrators deliberately endanger the lives of employees by striking busy working environments during the day ($n = 18$), representing an elevated strategy of AIL. Perpetrators bombed working environments outside of traditional working hours a little more frequently ($n = 29, 61.7%$), implying a reduced-AIL strategy which is instead suggestive of economic sabotage goals.

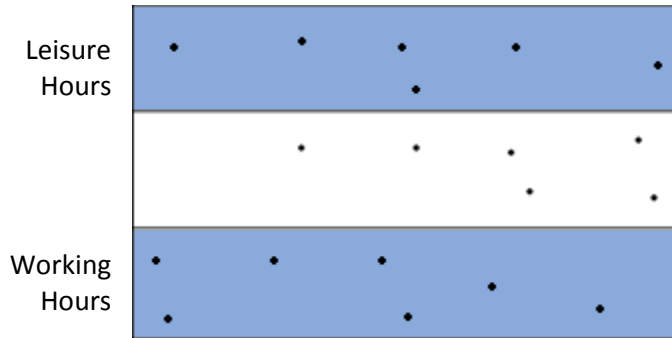


Figure 9 MSA Plot of Attack Schedule

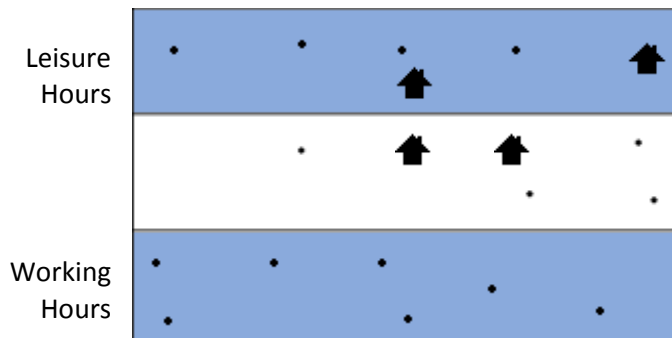


Figure.10 MSA Plot of Target Occupation (Attack Schedule x Target Location)

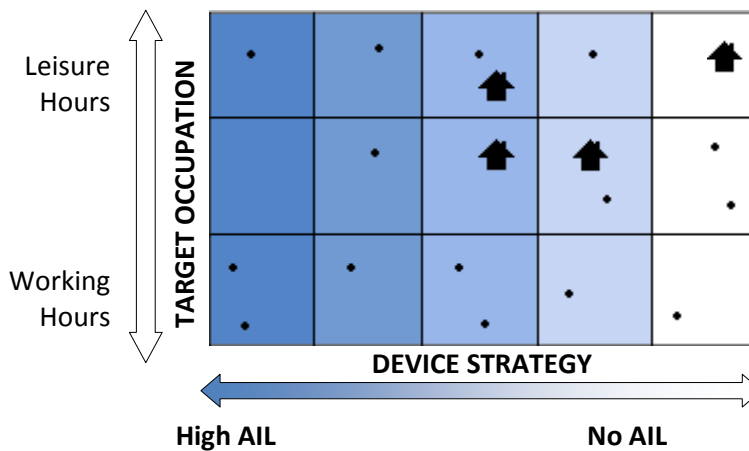


Figure.11 MSA Plot Illustrating AIL in 2 Dimensions (Target Occupation x Device Strategy)

Although these figures initially indicate that residential bombings are generally intended to be lethal, the interaction between the two AIL dimensions (device strategy x occupation of target) illustrates that residential attacks actually appear at the moderate- to no-AIL end of the device scale (Figure 11). Whilst a small majority of residential bombs manage to detonate ($n = 4$), a third of bombings do not ($n = 2$). In addition, no single issue bombers adopt device strategy AIL maximization when attacking home targets, instead opting for low-AIL single bomb ($n = 5$) or zero-AIL hoax device ($n = 1$) tactics.

Therefore, Figure 11 implies that all the potentially more lethal attack strategies involving multiple and secondary bombs are reserved for commercial targets, which makes intuitive sense given the greater potential for casualties. Where timing information was available, slightly more multiple bomb attacks targeted work locations that were not in use ($n = 4$) as opposed to occupied ($n = 3$). This demonstrates both cumulative and compensatory AIL. With regard to cumulative AIL, the bottom left hand corner of the plot in Figure 11 shows the most dangerous attacks where potentially lethal device strategies are combined with occupied work places. The top left hand corner is compensatory, using high-AIL devices with low-AIL targeting – potentially unoccupied workplaces outside work hours. In these cases, the perpetrator is either moderating his or her own high-AIL device strategy by deliberately combining it with a low-AIL targeting strategy, or s/he is using available resources and devices to compensate for lack of intelligence or organization, out of necessity.

At the no-AIL end of the scale, although hoax devices occur at both occupied and unoccupied target locations, the timing of a fake weapon is largely redundant, as unless a communiqué is issued, the device is, by definition, intended for when it is discovered, meaning that the location is necessarily occupied.

6.3 MSA: Forewarning

The final behavior analyzed was whether or not a specific warning about the attack was issued prior to the bombing. Warnings appear on the model in a third dimension (see Figures 12 and 13), indicating that warning behaviors form a third independent dimension that might compensate overall AIL. Where there are instances of two profile points occurring in a single plot region (in Figure 11), these can be divided diagonally, as illustrated by the dashed lines in Figure 12. Only the attacks that occur below the dashed line in each separate region were previously warned of; the remaining points throughout the plot represent bombings that were not accompanied by a known forewarning. From Figure 12, we can infer that warnings are relatively rare in the sample, occurring in only nine attacks (7.0%). Two warnings were issued when an occupied workplace was targeted, which implies that the warning may have been given in order to alert employees inside and to allow safe evacuation, thereby manipulating resulting lethality. This might be another example of compensatory behavior, whereby a more dangerous device strategy (e.g. a secondary bombing, as occurred in one case here) is mediated by measures to reduce casualties (such as issuing a warning), which might again imply intention for economic sabotage rather than human-harm.

However, more frequently, warnings were issued in the course of bombing unoccupied workplaces ($n = 3$). This raises the question why warn an unoccupied target? There is a possibility such a warning could be an extra measure to ensure no security staff or employees remain in the target after working hours, or, such a strategy could represent a tactical method of instilling fear into workers, in the absence of their physical presence. Regardless, this finding demonstrates that the motivations behind warnings are not always straightforward. The two remaining warnings issued during leisure hours were directed at residential properties, when occupants are most likely to be at home ($n = 2$). These attacks make up half of the bombings where a device detonated, which implies that fewer highly personal, residential attacks are genuine assassination attempts. Bombings on

occupied residences which were forewarned are perhaps very serious threats, and very risky 'scare tactics', rather than genuine attempts to harm the residents.

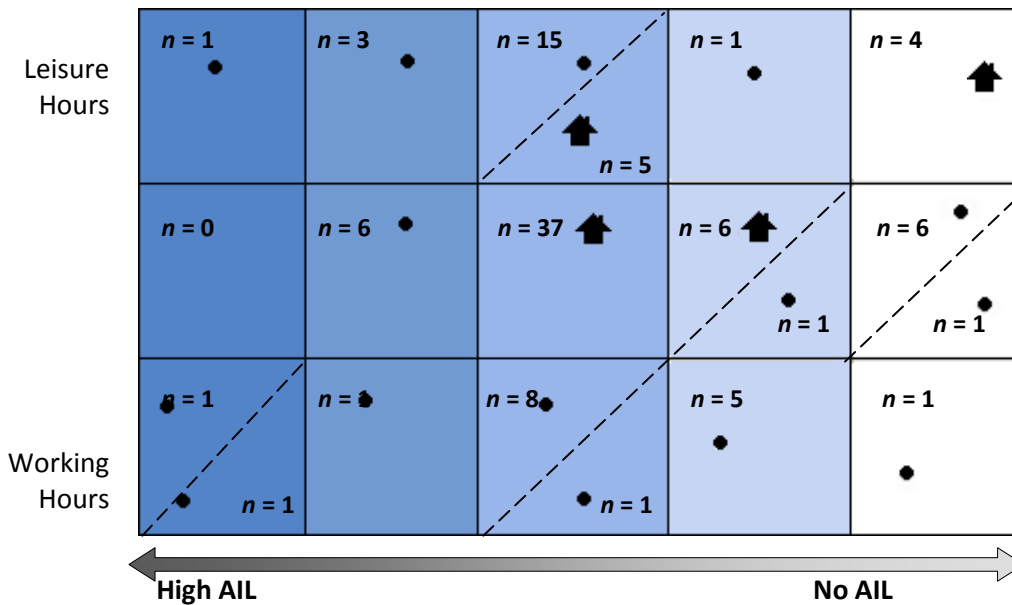
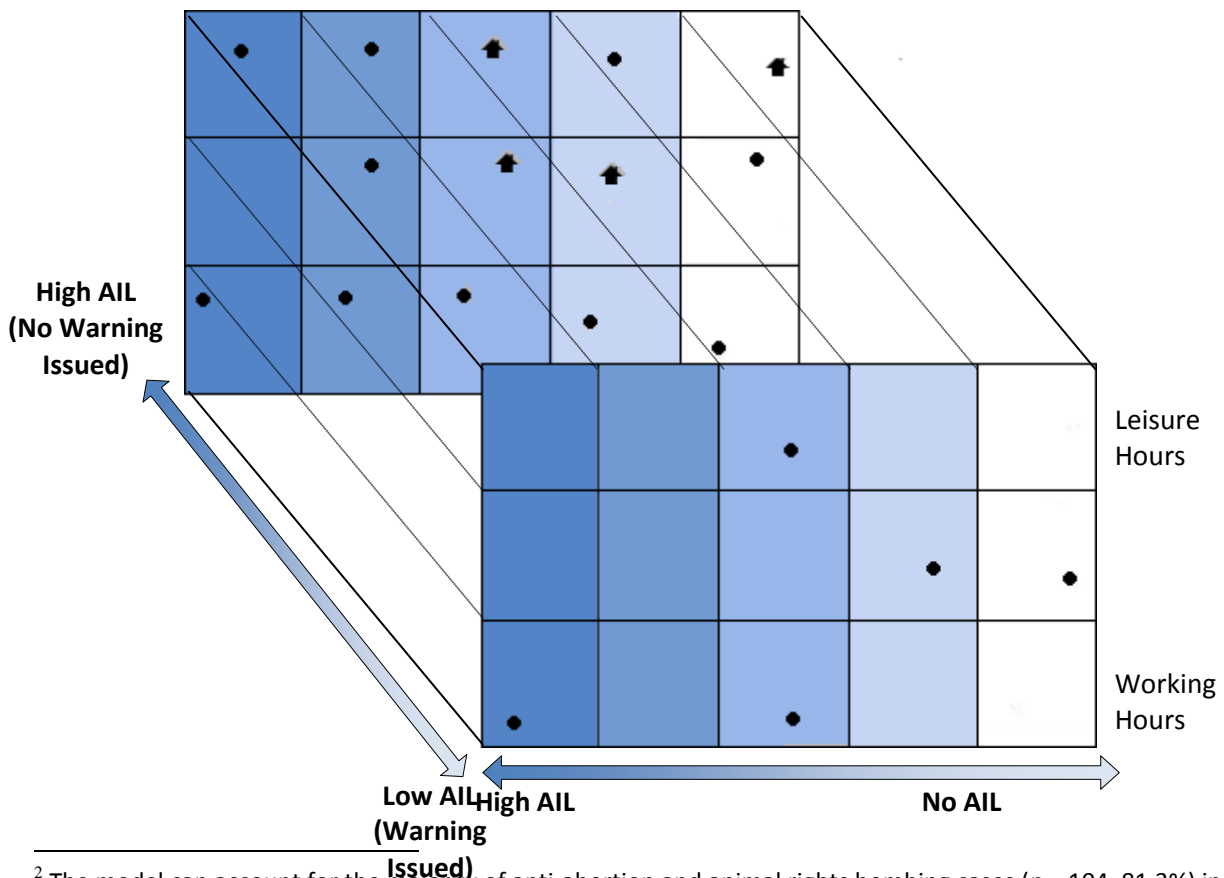


Figure 12 MSA Plot Illustrating AIL in 3 Dimensions, Including Warnings²



² The model can account for the majority of anti-abortion and animal rights bombing cases ($n = 104$, 81.3%) in this sample; all attacks that do not fit ($n = 24$) are excluded only on the basis of missing data regarding the result of the device (in a less conservative version of the model, these attacks might be represented in the failed and/or defused region).

(devices)

(hoax)

Figure.13 Model of 3-Dimensions of AIL

Finally, in a single case the targets were warned of a hoax device, representing a zero-AIL device-strategy, incapable of causing harm at all. This is therefore assumed to be intended to create fear and disruption. It is perhaps surprising that all hoaxes do not come with a warning, otherwise they may never be discovered at all.

As mentioned earlier, the use of warnings by international terrorist organizations may require a much more complicated measure of AIL (Wilson 2010), but with regard to the 128 single issue cases studied here only 9 incidents used warnings at all and therefore they are not used widely in order to prevent harm.

6.4 High-AIL: Animal Rights or Anti-Abortion?

The three dimensions of AIL presented in this paper demonstrate that there are a number of strategies single issue terrorists might employ in order to manipulate the risk of causing casualties, depending whether the device is intended to harm or cause economic sabotage. In order to distinguish whether animal rights extremists or violent anti-abortionists are intentionally more lethal, ideological motivation can be mapped onto the model.

Figure 14 illustrates animal rights and anti-abortion bombers strategies on the model, marked by a square or circle respectively. Anti-abortion extremists appear to conduct bombings at every step in the AIL device strategy scale, accounting for the majority of secondary and multiple device strategies ($n = 2$; 66.7% and $n = 6$; 60.0%, respectively). The majority of known working hour attacks were committed by anti-abortion extremists ($n = 15$; 83.3%). Given then, the proportion of operations that were committed by anti-abortionists during working hours, it is conceivable that many pro-life bombers both anticipate and seek a human presence at the scene of the attack, implying a willing risk of casualties. However, where timing information was known, almost half of all anti-abortion bombers ($n = 18$; 54.5%) chose to attack after working hours, so harmful, high-AIL device strategies may have been mitigated by the low-AIL targeting of an empty clinic. It is also clear from Figure 14 that anti-abortion bombers are responsible for the just over 50% of warnings prior to attacks ($n = 5$; 55.6%), and although this tactic might indicate a degree of mercy, a warning was only issued in a single high-AIL attack (secondary/multiple devices, targeting a clinic during working hours), and just one moderate-AIL attack (including a single bomb, targeting a clinic during working hours). Anti-abortionists issued warnings when the target was occupied ($n = 2$), not in use ($n = 2$), and unknown times ($n = 2$).

It is comparatively rare for US animal rights bombers to strike within working hours ($n = 3$; 20% of animal rights attacks (that occurred at a known time), and although timing information is missing in over half of animal rights attacks ($n = 19$, 55.9%), it appears that bombers are considerably more likely to strike outside of working hours (when timing information is known) ($n = 12$; 35.3%). Although the majority of US animal rights perpetrators target workplaces ($n = 26$; 76.5%) they are the only single issue bombers in this analysis to target private residences ($n = 6$; 17.6%) as well, which, combined with a tendency to favor out of hours attacks could be lethal. However, as previously noted, this high-AIL approach of targeting an occupied residential location is mediated by a lower-AIL weaponry profile, where only hoax ($n = 1$) and less lethal, single bombs ($n = 2$) were adopted for such attacks. This supports the finding that the most dangerous strategies that represent the highest AIL on all dimensions are reserved for larger, workplace attacks. Of all US animal rights bombers, a secondary bomb strategy was utilized just once (2.9%), and multiple bombs on five occasions (14.7%), although neither were known to target an occupied location. On four occasions animal rights perpetrators issued a specific warning of the attack (11.8%), three times regarding a single device, and once regarding a hoax device.

Animal rights and anti-abortion activists adopted a hoax device strategy in an equal number of cases, although animal rights perpetrators favored the fake bomb proportionately more frequently ($n = 6$ each, 17.6% and 6.4% respectively).

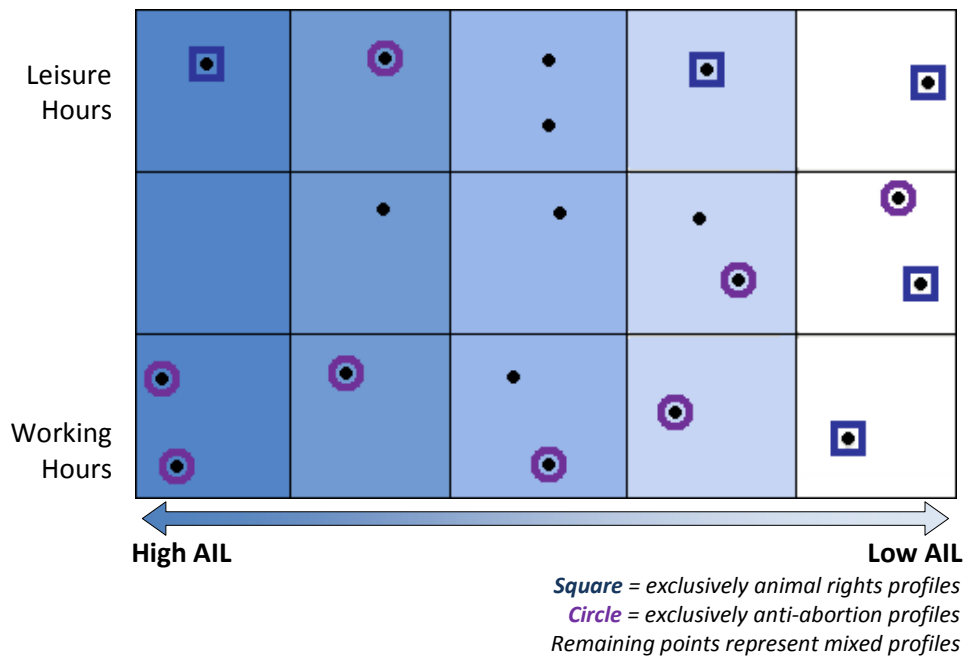


Figure 14 Model of AIL Behaviors by Perpetrator

6.6 AIL and Resultant Lethality: Casualty Data

Although the bombings in this sample of US domestic single issue attacks yielded a relatively low rate of casualties, the majority fall into the areas of the plot that we might expect, having labeled them as 'high'-AIL. The most injuries inflicted by a single attack in the sample happened as a result of a secondary and multiple device strategy that targeted a workplace during working hours, without warning. Seven were injured in this anti-abortion attack, which represented the highest AIL possible here, on all three dimensions. No injuries or fatalities were recorded in other multiple bomb attacks, and the remaining casualties ($n = 5$) happened in the moderate-AIL device strategy range, where a device detonated.

Where AIL information was known for each dimension, the majority of casualties were the result of at least a moderate-AIL device strategy, a high-AIL targeting strategy, and no warning (casualties $n = 12$, total injuries = 8, total fatalities = 1). (A single injury was also caused in a case with a similar AIL profile, but in which a warning was received). The majority of casualties were caused at a workplace during office hours ($n = 2$, total injuries = 8, total fatalities = 1), although one resulted from a residential attack during leisure hours ($n = 1$, total injuries = 1).

In one attack, two individuals were harmed in a workplace attack that happened during closure hours, that was pre-warned. In this case, two passers-by were hit by glass as the device exploded inside the clinic. This attack illustrates why single bombs represent a risk of harm and therefore a moderate degree of AIL in spite of other measures intended to reduce casualties; the attack happened in the early hours of the morning when the clinic was not in use, and several calls were made to the bomb squad, warning of the attack, yet the passers-by remained oblivious.

Therefore, although resulting lethality is not necessarily a reliable indication of AIL, here, *resulting* lethality implies that our model of AIL is indeed useful. However, terrorist campaigns do not always happen as planned, so emphasis should not necessarily be placed on actual consequences. It is expected that, although lethality was intended, many high-AIL attackers in the model failed to

realize the level of lethality they desired, and equally that the perpetrator who warned a carefully targeted empty building accomplished a degree of lethality that was not actually intended. These figures stress that although the AIL of a bombing can be relatively successfully manipulated, any use of a genuine device carries a risk of harm, no matter how carefully the operation is orchestrated.

7. Discussion

The new concept of AIL has been operationalized on three independent dimensions and can be used to measure the assumed intentions of an individual terrorist or campaign. The actual strategies used to promote or limit loss of life have received no attention in the literature to date and these results are unique in their empirical assessment of the terrorist strategies used to avoid or maximize casualties. The model developed from the single issue attacks studied here demonstrates that the three independent dimensions of AIL; device strategy, targeting and warnings, can be used to measure cumulative and compensatory AIL strategies. In this sample, a wide variety of AIL is displayed from hoax attacks that have no potential to harm and are therefore designed to cause fear and disruption, through to the most potentially lethal attacks with secondary bombs in occupied workplaces given no warning.

The interaction between the three AIL dimensions is important, and each measure does not represent the 'whole picture' of AIL in isolation. For example, although the scale of device strategy is no doubt a scale of intention to cause harm as a function of *willing risk*, on its own it cannot tell us if the perpetrator truly *wanted* to cause harm, or if they merely *accepted* that people might get hurt as a result. This is exemplified by an animal rights attack that adopted a multiple device strategy, but did so at hours when the target location was assumed to be empty. Certainly, the bomber/s in this case exhibit an elevated willingness to inflict casualties in the course of an attack, compared to a hoax or single bomb strategy, but the decision to commit the act at night also suggests that it might not be that they *'intended'* for casualties; rather *'deliberately endangered'* potential victims in the quest for a different outcome (such as widespread property damage). Therefore, although the scale of device strategy, the target/time interaction, and presence of warnings can indicate whether or not lethality was intended, all three measures are required to make a more informed judgment of intent.

The three dimensions are also required in order to label an AIL strategy as 'cumulative' or 'compensatory'. A strategy that adopts multiple devices and a secondary bomb, at an occupied target without a warning would indicate 'cumulative AIL', where all measures possible were taken to ensure the highest possible level of harm. Such a strategy would also implicate a sophisticated level of planning, bomb making expertise and numerous resources. In this sample, most perpetrators engaged in 'compensatory' strategies, which involve employing moderate- to high-AIL device strategies, which are mediated by low-AIL tactics like striking an unoccupied target or issuing a warning; or high-AIL targeting tactics that are balanced out by using an unsophisticated or indeed hoax device strategy. 'Compensatory' strategies might also be suggestive of limited resources and skills, where the perpetrator demonstrates the maximum AIL approach possible, within the constraints of individual/group time, expertise and assets. An approach that is low on all AIL dimensions implies that the incident is merely a scare tactic designed to cause psychological distress. Equally, low-AIL perpetrator approaches might represent those who are, fortunately, incapable of conducting attacks using genuine bombs, thereby settling on threat and intimidation tactics, rather than actively violent ones that are designed to harm.

It should be noted that the general investigation of bombings as a particular terrorist tool necessarily acknowledges a wide range of attacks, by numerous diverse organizations, cells and even individuals. As Hoffman (1993) observes,

“bombs provide a dramatic, yet fairly easy and often risk-free, means of drawing attention to the terrorists and their causes. Few skills are required to manufacture a crude bomb, surreptitiously plant it, and then be miles away when it explodes. Bombs, therefore, do not require the same organizational expertise, logistics and knowledge required of more complicated or sophisticated operations, such as kidnapping, assassination, and assaults against defended targets.” (p.13)

Overall, in the US attacks studied here, the anti-abortion attacks demonstrate higher-AIL strategies than the animal rights attacks. Comparative analysis of the three dimensions of AIL in different single issue movements implies that US violent anti-abortion activists generally commit more deliberately lethal attacks than their special interest, animal rights counterparts. The anti-abortion extremists display higher-AIL profiles in terms of both targeting and device strategy, although they are slightly more likely to issue occasional warnings which might limit some damage. US animal rights bombers, on the other hand, tend to use proportionately more hoax bombs with zero-AIL, and fewer high-AIL device strategies. Although US animal rights bombers do approach targets on residential property, attacks on occupied targets are not frequent.

The hoax devices used in some of the attacks in the present sample show a particularly ‘low resource’ strategy for causing fear and disruption. The hoax attack is cheap and requires no resources or expertise, and is a low-risk strategy for the bomber, as it cannot detonate accidentally during manufacture or placement. A warning as an accompaniment to a hoax device is arguably even more advantageous in cost/benefit terms than the fake weapon alone, as all low-risk benefits are complimented by the potential fear induced by a simple bomb warning. In addition, such a tactic could potentially cause commercial operations to temporarily cease, whilst the hoax device is being dealt with, thereby resulting in a form of economic sabotage.

In the present study, only cases where a hoax device was physically present were included, but the device strategy scale could be extended to include cases where there is no ‘fake’ device at all. Such cases would necessitate a warning, requiring the ‘bomber’ to interact with the authorities or other agency. However, as far as other elements of resources, it requires the least organization, and carries the least personal risk, not even requiring the person to have gained access to the target at all.

The role of warnings in higher-AIL strategies is not straightforward. In US single issue bombings, warnings are issued to workplace targets, in varying degrees of device strategy, at all times of day. Whilst a number of these warned attacks involved a genuine bomb, during the day, which intuitively suggests a sincere attempt to reduce potential casualties, the remainder of attack profiles raise the question why a warning be issued to a workplace after working hours, when it is empty. Such a strategy could be employed to maximize the psychological impact a genuine bomb has, in the absence of an occupied target. The warning could be a tool to capitalize on the drama of the bombing, whilst publically drawing attention to the attack. Although such a warning might also be employed to ensure that the building is empty prior to detonation, the data also suggests that, cynically speaking, a warning may not necessarily be a genuine act of mercy.

Overall, only a small proportion of the attacks studies here employed warnings at all, but certainly with respect to a wider view of terrorist bomb attacks, a more detailed study of warnings merits attention, particularly in order to understand some of the more sinister motivations that might really be behind bomb warnings (Wilson 2010).

This model of AIL can also be applied to other single issue attacks, for example, those with the same motivations but occurring in other countries, or by groups motivated by different issues, for instance white supremacist or eco-terrorism groups. Further research could compare a wide range of terrorist action along the dimensions set out here, and could prove to be a useful tool in plotting change over time and identifying potential escalation in extremist action. Equally, the model can be applied in the same way to international terrorist groups.

Previous research allows some comparison between the US incidents discussed here and incidents occurring in the United Kingdom (UK) (Lemanski & Wilson 2009a; 2009b). The first point to note is that the present research was unable to find any UK anti-abortion motivated bomb attacks at all – a point the UK authorities should be aware of in terms of future ‘contagion’. Likewise, for the US, it is perhaps worth noting that the non-US animal rights bombings, predominantly located in the UK, generally represented more willingness to cause physical harm than US counterparts. UK and European perpetrators were more likely to utilize high-AIL approaches to targeting, less zero-AIL hoax attacks and more multiple bomb strategies with an elevated AIL. Warnings were also issued less frequently in non-US attacks animal rights attacks, and only with moderate- to low-AIL device strategies. Such high-AIL targeting behaviors might have been extracted from the US animal rights data if missing timing information had been available, or using a larger sample size. However, it is entirely feasible that UK-based animal rights perpetrators would demonstrate higher-AIL behaviors on the whole, considering that the movement originated in the UK, and has therefore had more time to develop, intensify and escalate. The majority of violent splinter groups, such as the Animal Rights Militia and the Justice Department also appear to be of UK origin. As such, these results imply that whilst the UK and surrounding countries seem to represent the most violent ‘core’ of the animal rights movement, a number of extremists prepared to embrace the bomb as a tool for change, and to adopt willingly lethal strategies, are certainly active in the US, and they may well follow a high-AIL path as in the UK and Western Europe in the future. US domestic animal rights groups might also observe and learn from the violent tactics of single issue counterparts, like the more lethal anti-abortion movement.

This model is intended to provide insight into and understanding of the behavioral strategies that are taken in single issue terrorist bombing campaigns, in order to define the concept of AIL. Although there is no reason to believe that this model cannot be applied to other types of terrorist groups, caution must be exercised about inferring predictive capabilities. It must be noted that although open source data has provided a wealth of information regarding the groups under study, media reports may not be 100% accurate, and are sometimes vague and imprecise. Despite these methodological limitations, this model of AIL reveals valuable structures in single issue extremist behavior, and is a step forward in assessing how much of a threat special interest groups genuinely pose to US national security, in isolation as well as in comparison to international counterparts.

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