



Technical White Paper

COMBATING DOMESTIC TERRORISM

Empowering Witnesses to Fight White Supremacist Extremism While Protecting Civil Liberties

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OVERVIEW

In a cryptographic escrow that would be used for combating domestic terrorism, defining the threshold that would unlock the escrow is a complex problem, because defining “risky” behavior is highly subjective. Moreover, because a crime hasn’t yet been committed, the stakes are extremely high. It is therefore important that this process is designed thoughtfully. The threshold should prevent false negatives because it is important not to ignore signs of mass terror. However, the threshold should also prevent false positives in order to avoid infringing on civil liberties.

Building a **threshold-based risk model** based on observable concerning behaviors can help different stakeholders better understand the severity of the risk, and empower witnesses to take meaningful and calibrated action to protect society against violence. This technical white paper outlines the different components of the risk model.

RESEARCH METHODS

In addition to reading published research about gun violence prevention, counterterrorism and law enforcement policy, civil liberties advocacy, and domestic violence response (sources linked below), this project relied on first-hand interviews of experts in these respective fields. With their input and feedback, a novel risk model was written and iterated upon. The experts interviewed included:

- ▶ [Jason Blazakis](#): The Soufan Center
- ▶ [Colin P. Clarke](#): The Soufan Center
- ▶ [Esha Dholia](#): La Casa de las Madres Domestic Violence Shelter
- ▶ [Daveed Gartenstein-Ross](#): Valens Global
- ▶ [Vidhya Ramalingam](#) and Team: Moonshot CVE
- ▶ [Nicholas Rasmussen](#): The McCain Institute
- ▶ [Oren Segal](#): Anti Defamation League
- ▶ [Hina Shamsi](#): ACLU National Security Project
- ▶ [Patrick Skinner](#): Savannah Police Department
- ▶ [Brette Steele](#): The McCain Institute
- ▶ [Manar Waheed](#): ACLU National Security Project
- ▶ [Julia Weber](#): Giffords Law Center

MATHEMATICAL MODEL

The threshold-based risk model is based on four key elements:

Element 1

The first input looks at the relational proximity between the witness and the suspect, denoted by a numerical weight. The closer the relationship is, the higher the weight.

- ▶ Let r : relationship to the suspect

Element 2

The second input looks at the concerning behaviors demonstrated by the suspect, observed by the witness. This is measured by a number of survey-based behavioral questions that belong to a specific category. Each question has its own category and behavior weight, which are composites of the question's total weight.

- ▶ Let n : number of questions
- ▶ Let i : first question index ($i = 1..n-1$)
- ▶ Let j : second question index ($j = i+1..n$)
- ▶ Let c_i : category weight
- ▶ Let b_i : behavior weight
- ▶ Let $w_i = c_i b_i$: total weight
- ▶ Let x_i : question answer {1 = yes; 0 = no, 0 = not sure}

Element 3

The third element creates a “gun dealbreaker” score that tips the scale to unlock the escrow if the user has demonstrated at least one concerning behavior and also is in possession of a weapon. This factors in the multiplicative impact of concerning behaviors and active gun possession.

- ▶ Let d_{ij} : gun dealbreaker constant

Element 4

The final element is the defined numerical threshold of risk required to unlock the escrow.

- ▶ Let T : *threshold to unlock the escrow*

These variables define the following equation that powers the risk model:

$$r \cdot \left(\sum_{i=1}^{25} w_i x_i + \sum_{i=1}^{n-1} \sum_{j=i+1}^n d_{ij}(x_i x_j) \right) \geq T$$

Below, each of these variables is described in greater detail.

QUESTIONNAIRE

The first component of the framework is a witness questionnaire that assesses five categories of behaviors:

- ▶ **Stressed Behaviors:** The person has displayed signs of interpersonal conflict, has mental health issues, or has gone through a highly stressful situation;
- ▶ **Extremist and Hateful Behaviors:** The person has displayed signs of extremist or hateful behavior (including the use of hate symbols, memes, or propaganda), or has endorsed or supported a terrorist or hate group;
- ▶ **Violent Behaviors:** The person has been involved in violent physical altercations;
- ▶ **Weapons Behaviors:** The person has a firearm or other weapons; and
- ▶ **Threatening Behaviors:** The person has made direct threats to cause harm, or has expressed feelings or fantasies about causing mass harm. The person has left a legacy token or manifesto describing a plan of attack.

Each question is derived from existing research about what constitutes concerning behavior that might lead to terrorism. The source is also cited below.

Within each category, the witness questionnaire asks each participant a few specific questions about observable concerning behaviors:

Stressed Behaviors

- ▶ Is this person experiencing unusually extreme feelings of [hopelessness](#), [anxiety](#), [depression](#), [anger](#), or [stress](#)?
- ▶ Is this person experiencing [interpersonal conflicts](#) with friends, family, or colleagues (at work or at school)?

Extremist and Hateful Behaviors:

- ▶ Does this person perpetuate extreme [conspiracy theories](#)?
- ▶ Does this person surround themselves with people who spread [extremist propaganda](#)? This could either be in real life or in online forums.
- ▶ Does this person have tattoos, flags, or other paraphernalia featuring [hateful symbols](#)?
- ▶ Does this person express support for [right-wing extremism](#) or [white supremacist organizations](#)?
- ▶ Does this person express support for [hateful ideologies](#)?

Violent Behaviors:

- ▶ Has this person forced you to have [sex without your consent](#)?
- ▶ Has this person ever attempted to [strangle you](#) or [cut off your breathing](#)?
- ▶ Has this person [inflicted violence](#) on you or others?

Weapons Behaviors:

- ▶ Has this person expressed interest in [building bombs or other weapons](#)?
- ▶ Does this person recreationally use [weapons](#), such as knives, clubs, nunchucks, or axes?
- ▶ Does this person [possess an assault rifle](#)?

Threatening Behaviors:

- ▶ Has this person [communicated threats \(real or fantasy\)](#) to cause harm to you or a group of people?
- ▶ Has this person written a manifesto or created a [legacy token](#) describing a future plan of attack?

CATEGORY AND BEHAVIOR WEIGHTING

Each category and each behavior is given its own weight. *Category Severity* is ranked on a scale from 1 to 5. *Behavior Severity* is ranked on a scale from Low (value = 1), to Medium (value = 3) and High (value = 5). The *Total Weight* for each question is the multiplication of the *Category Severity* and *Behavior Severity*.

The table below outlines the specific component weighting for each question of the risk model. This is based on interviews with the subject-matter experts, listed above.

Heuristic Model			
Questions About Observed Behavior	Category Severity	Behavior Severity	Total Weight
Is this person experiencing unusually extreme feelings of hopelessness, anxiety, depression, anger, or stress?	1	Low	1
Is this person experiencing interpersonal conflicts with friends, family, or colleagues (at work or at school?)	1	Low	1
Does this person perpetuate extreme conspiracy theories (for example: QAnon, Pizzagate)?	2	Low	2
Does this person surround themselves with people who spread extremist propaganda? This could either be in real life or in online forums (for example: Gab, 8kun, Stormfront).	2	Medium	6
Does this person have tattoos, flags, or other paraphernalia featuring hateful symbols?	2	High	10
Does this person express support for right-wing extremism or white supremacist organizations?	2	High	10
Does this person express support for hateful ideologies (for example: misogyny, anti-Semitism, Islamaphobia, anti-immigrant, eugenics, or homophobia)?	2	High	10
Has this person forced you to have sex without your consent?	3	Medium	9

Heuristic Model			
Questions About Observed Behavior	Category Severity	Behavior Severity	Total Weight
Has this person ever attempted to strangle you or cut off your breathing?	3	High	15
Has this person inflicted violence on you or others?	3	High	15
Has this person expressed interest in building bombs or other weapons?	4	Medium	12
Does this person recreationally use weapons (for example: knives, clubs, nunchucks, axes)?	4	Medium	12
Does this person possess an assault rifle?	4	High	20
Has this person communicated threats (real or fantasy) to cause harm to you or a group of people?	5	High	25
Has this person written a manifesto or created a legacy token describing a future plan of attack?	5	High	25

RELATIONSHIP WEIGHTING

In order for the risk model to be effective, it must also account for the proximity of the witness to the suspect. Therefore, a second component to the risk model is weighing the relationship of the witness to the suspect. The closer the relationship, the higher the overall score should be.

The table below shows the category of relationships and their overall weight. Intimate partners are given the highest weight, given the correlation between domestic violence and mass shootings. Family members are given the second-highest weighting because of the physical proximity and longevity of the relationship. Online acquaintances are given the third-highest weighting because of the [prevalence of radicalization through online communities](#).

Relationship	Weight
Intimate Partner	2
Family Member (parent, sibling, relative)	1.5
Online Acquaintance	1.3
Colleague (work/school)	1.2
Community Member (neighbor, place of worship)	1.1
Law Enforcement	1
Stranger	1

GUNS DEALBREAKER WEIGHTING

While most behaviors in isolation may not be worrying enough to warrant suspicion of a terrorist attack, some combinations of behaviors should automatically raise concerns. While the risk model considers additive behaviors (the sum of individual behaviors), it must also take into account multiplicative behaviors (the larger impact when behaviors are considered in combination). While gun possession is a right protected under the Second Amendment, [studies show](#) that a combination of access to firearms and history of violence can lead to mass shootings. Therefore, the risk model also factors in that the combination of gun possession with another concerning behavior should unlock the escrow to ensure further investigation is undertaken.

THRESHOLD LEVELS

The threshold of the risk model is set at 25. This value was determined by looking at each individual behavior at the lowest-ranked relationship weight, without the gun dealbreaker weighting, to ensure that no one question was concerning enough to unlock the escrow. The last two questions of the risk model (“Has this person communicated threats (real or fantasy) to cause harm to you or a group of people?” and “Has this person written a manifesto or created a legacy token describing a future plan of attack?”) were deemed severe enough on their own to warrant the escrow to be unlocked. Therefore, the individual values of these questions, 25, became the default threshold level.

WEBSITE

An online simulator of this risk model can be found at thewitnessapp.org. This tool is not intended to be a fully functioning reporting escrow, but is instead a demo of the risk model for policy makers, law enforcement officials, and civil liberties activists to better understand the details of the solution and to reimagine how an innovative public-safety model could potentially work.



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