Using force to protect civilians

Explaining outcomes of UN military protection operations in Africa

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Abstract

While protecting civilians from physical violence is the priority task for almost every Blue Helmet, we are mostly unaware of the causal conditions leading to protection successes across time and UN missions when force was used to protect. This knowledge-gap is largely attributable to the lack of updated event data suitable for systematically analysing outcome variations. Building on a new dataset capturing 200 military protection operations in ten UN missions across Africa from 1999 to 2017, the article explores four causal condition candidates that could explain UN troops' ability to protect civilians: deterrent presence, risk-willingness, pre-emption, and matching the perpetrators of violence. It finds that pre-emptive operations tailored to match particular threats often lead to successful outcomes. Conversely, the deterrent presence of large uniformed components and risk-willing troop contributors do not systematically lead to better outcomes across cases. The findings point to the need to tailor operational concepts and military protection practices based on better threat assessments, to improve pre-deployment training scenarios, and to strengthen the UN intelligence system. However, as many of the cases remain unexplained, there is also a need to search for more proximate casual conditions through further qualitative comparative studies of UN military efforts to protect.

Keywords:

- UN peace operations
- Protection of civilians
- Utility of force

[1] The draft article draws on a forthcoming PhD-thesis due for submission in December 2018 at the University of Oslo.

Introduction

What explains cases when UN troops effectively used force to protect civilians from violence? Paradoxically, while protecting civilians from physical violence is the priority task for nearly every military UN peacekeeper, we remain largely ignorant of the conditions leading to successful outcomes. This knowledge-gap is largely attributable to the lack of updated event data suitable for systematically analysing outcome variations (Clayton 2016; Dewaal 2014; Diehl & Druckman 2015; Williams 2016). Reliable data from conflict areas where UN troops deploy are difficult to obtain, and systematic reporting on the particular performance and outcomes of UN military protection efforts is also often lacking (Duursma 2017 p. 7; Holt et al. 2009 p. 213; Lynch 2014).

Explanations for UN protection *failures* point to several challenges. Some argue that the UN is unfit to wield military force for any purpose (Howard & Dayal 2018). In addition, when UN forces are deployed, they are so in insufficient numbers, of which many are risk averse due to debilitating political caveats, cumbersome command and control systems, and inadequate resources (Holt & Berkman 2006 p. 64; Tardy 2011; United Nations 2014). Furthermore, despite a range of new training material, UN troops are commonly not well trained for their assigned tasks, including how to protect civilians (Cammaert 2016; Holt & Berkman 2006; Integrated Training Service 2008; Rosén et al. 2016). Sometimes, UN troops do not even possess basic military skills needed for operations in complex conflict environments (dos Santos Cruz et al. 2017 p. 13). Moreover, most missions neither possess technologies to provide early warning of potential threats to civilians, nor relevant language skills, leading to wanting situational awareness (Dorn 2010, 2016; Willmot 2017). Despite much improved conceptual guidance, there is also still great variation in how different troop contributors understand and implement their protection mandate (Bode & Karlsrud 2018).

Notwithstanding all these limitations, UN peacekeeping is quite effective. It is largely established that UN peacekeeping has an overall positive effect in the aftermath of civil war (Di Salvatore & Ruggeri 2017; Fortna & Howard 2008). The deterrent presence of large UN peace operations reduces the intensity of conflicts, decreases their duration, and increases the longevity of peace after conflict (Hegre et al. 2010, 2011, 2015, 2018; Hultman et al. 2013a, 2013b; Phayal & Prins 2018). Even though deployed to the most difficult cases, UN peacekeeping largely does work (Fortna 2007; Gilligan 2008; Gilligan & Stedman 2003). Moreover, UN troops do on occasion directly protect civilians from physical violence by using military force. Successes include defeating armed insurgents, such as the M23 in the DRC (2013), and ending a violent regime crackdown on civilians in the Ivory Coast (2010-2011), alongside French forces (Novosseloff 2015; PKSOI 2013). Importantly, these observations indicate that UN military forces *can* provide protection to civilians under the right conditions. However, we still know little about what these conditions are and how they come about.

To explore what explains successful outcomes of UN military protection operations across time and place, I have developed a new dataset – termed United Nations Protection of Civilians Operations (UNPOCO) − capturing core characteristics of 200 UN military protection operations at the tactical and operational levels across ten UN missions in Africa from 1999 to 2017.[2] The mapping rests on the UN Secretary-General's (UNSG) reporting to

[2] UN military protection operations − or just protection operations − are events fulfilling all of the following four criteria: i) perpetrators physically threatened or harmed civilians; ii) UN military troops, with a mandate to protect civilians, deployed to the location where civilians were threatened or harmed; iii) UN troops used military force to protect civilians, and iv) the UN Secretary-General's reporting to the UN Security Council captured the event. UNPOCO captures reported military protection operations from the following UN missions: i) United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (**MINUSCA**), ii) United Nations Multidimensional Integrated Stabilization Mission in Mali (**MINUSMA**), iii) United Nations Mission in the Republic of South Sudan (**UNMISS**), iv) United Nations Interim Security Force for Abyei (**UNISFA**), v) United Nations Organization Mission in the Democratic Republic of the Congo (**MONUC**)/ United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (**MONUSCO**) (together counted as one mission), vi) African Union/United Nations Hybrid operation in Darfur (**UNAMID**), vii) United Nations Mission in the Sudan (**UNMIS**), viii) United Nations Operation in Côte d'Ivoire (**UNOCI**), viiii) United Nations Mission in Liberia (**UNMIL**), and x) United Nations Mission in Sierra Leone (**UNAMSIL**).

the UN Security Council (UNSC) − arguably "the most regular and visible reporting on mission operations" (United Nations 2014 para. 16).

The operations occurred in different countries, at different times, involving different troops faced with different perpetrators targeting different civilian populations in different ways. As such, I expect that both successful and unsuccessful outcomes could emerge due to different combinations of conditions, and that different causal pathways may have led to similar outcomes. Therefore, I pursue answers with the help of fuzzy set Qualitative Comparative Analysis (fsQCA), specifically developed to help social scientists better explain causal complexity across a larger number of cases (Schneider & Wagemann 2012 p. 8).

Rather than isolating independent variables' additive effect on a dependent variable, QCA uses Boolean algebra to discover causal pathways, i.e. combinations of conditions that are either necessary or sufficient for an outcome. To arrive at such pathways, QCA portrays "each case as a combination of causal and outcome conditions. These combinations can be compared with each other and then logically simplified through a bottom-up process of paired comparison" (Ragin et al. 2006). The comparison is performed with the help of software, allowing more cases to be compared than what is traditionally done in qualitative comparative research designs (George & Bennett 2005; Schneider & Wagemann 2012). The result of these paired comparisons are displayed by the software as a "truth table", where each row "denotes a *qualitatively different* combination of conditions, i.e. […] a difference in kind rather than difference in degree" (Schneider & Wagemann 2012 p. 92). In practical terms, I score the cases' membership in sets. Membership scores come in two forms, either "crisp" (i.e. either 0.0 or 1.0), or "fuzzy" (i.e. somewhere along the scale between 0.0 and 1.0). The "fuzziness" does not imply lack of clarity. It means that it "permits [set] membership in the interval between 0 and 1 while retaining the two qualitative states of full membership and full non-

membership" (Ragin et al. 2006). Crisp and fuzzy set values can be used interchangeably in QCA research designs.

The article proceeds with introducing the theoretical underpinnings of four promising casual condition candidates that seek to explain the ability of UN troops to protect civilians from violence: deterrent presence, risk-willingness, pre-emption, and matching the perpetrators of violence. Thereafter, I operationalize each condition according to standard QCA-procedures, and then investigate if some of these conditions unite in causal pathways that systematically explain outcomes across cases. I find that pre-emptive operations tailored to match particular threats often lead to successful outcomes. Conversely, the deterrent presence of large uniformed components and risk-willing troop contributors do not systematically lead to better outcomes. I conclude by deriving implications for research, policy, and practice of using force to protect in UN peace operations.

Understanding the utility of force to protect civilians from violence

Protection by force in UN peace operations is a rather recent phenomenon, and therefore accompanied by limited theory development. In addition, military force is almost never used to protect, limiting the number of cases to learn from (United Nations 2014). The literature we do find is diverse and largely bereft of dominant theories or theoretical debates, presenting challenges for studying causal relations and variations in outcomes across time and UN missions. Historically, peacekeeping studies "closely followed the practice of peacekeeping" in particular cases, which only occasionally described peacekeepers' efforts to protect (Fortna & Howard 2008). After the infamous protection failures of the mid-1990s, most of the literature turned to address the *limits* of peacekeepers' ability to use force to protect civilians under threat (see e.g. Findlay 2002; Schmidl 1997). Only by the mid-2000s did the literature begin to concern itself "with any variation between success and failure" (Fortna & Howard

2008 p. 284). Nevertheless, the field still suffers from a lack of comparative analyses of remaining challenges based on reliable and systematic event data, leaving "little potential for generalization" (Autesserre 2014; Clayton 2016). I will shortly return to relevant exceptions.

Moreover, since using force for any purpose remains highly controversial for the UN, much of the dominant literature is still − for many convincing reasons − mostly concerned with the UN's inherent *limitations* of using force (Berdal & Ucko 2014; de Coning et al. 2017; Howard 2008; Howard & Dayal 2018; Karlsrud 2015; Nadin 2018; Tardy 2011; Willmot et al. 2016). Yet another strand has been concerned with covering critical empirical gaps, developing typologies of different types of missions across time, discussing their core characteristics, and their most pressing tasks (Bellamy et al. 2010; Bellamy & Williams 2013; Durch 2006; Koops et al. 2015). Although these address how particular missions have attempted to protect civilians, they do not provide theory-driven cross-case comparisons of military protection events.

Furthermore, thematic literature on UN peace operations seeks to influence ongoing debates, producing timely responses to particular policy developments (or lack thereof), reviews of UN peacekeeping, or particularly damaging protection failures (Cammaert & Blyth 2013; Center for Civilians in Conflict 2015; Friedrichs 2011; Gorur 2013; Willmot 2017). While providing a wealth of empirical information about contemporary protection challenges, and what they may mean for ongoing UN reform, they provide few stepping-stones for theory development and generalizable explanations for why peacekeepers succeed or fail to protect.

Therefore, I am casting the net wide, capturing four promising causal condition candidates from existing literature and UN policies that may explain successful outcomes of military protection operations: i) deterrent presence, ii) risk-willingness, iii) pre-emption, and iv) matching the perpetrators of violence.

Deterrent presence

One strand in the literature seeks to trace the effects of UN troop numbers on civilian targeting. The underlying hypothesis is that the *presence* of enough uniformed personnel will deter perpetrators from wrongdoings against civilians. Recent quantitative studies have added much-needed methodical rigor and greatly contributed to our understanding of the macro-effects of UN peacekeeping on civilian security (Hegre et al. 2010, 2015, 2018; Hultman 2016; Hultman et al. 2013a, 2014, 2016; Kathman & Wood 2014). They find that UN peace operations score rather well, reducing the intensity of conflict and civilian targeting, the duration of armed conflict, and the risk of armed conflicts spreading. These effects, however, only seem to appear when the UN deploys large operations − meaning those missions that deploy *thousands* of uniformed personnel. However, the authors do not pinpoint an exact threshold number of troops that triggers this deterrence mechanism.

Being more numerically specific, military studies have also been concerned with troop numbers' effect on civilian security and stability. The most influential in recent times, however, and most controversial, is James Quinlivan`s 1:50 troop-to-*population* ratio (Quinlivan 1995). Influential because it has been referred to in US counterinsurgency doctrine, controversial because his findings are based on only a handful of cases that actually obtained the 1:50 ratio (HQ Department of the US Army 2014). Steven Goode has challenged Quinlivan by proposing a ratio of 1:357, based on a much larger set of cases (Goode 2009). However, Goode is more sceptical to the explanatory power of particular ratios as "having enough forces does not equate to victory" (Goode 2009 p. 56). He emphasizes the importance of using ratios with caution, as success also depends on several other factors.

Although most UN peace operations deploy relatively few troops to large areas with huge populations (e.g. Sudan and the DRC) − not even coming close to fulfilling the troop-to-population ratios presented in this literature − *some* UN missions have in fact met the

predicted favourable troop-to-population ratios, including the UN missions in Abyei, Sierra Leone, and Liberia. Despite apparent difficulties of identifying specific troop-to-population ratios that would lead to positive protection outcomes, it seems worthwhile to investigate if they can be *part* of the explanation to what determines UN military troops' ability to protect civilians from physical violence.

Risk-willingness

Protecting civilians sometimes demands considerable risk-taking. However – for many legitimate reasons − many UN troop contributors are seldom willing to take such risks (Berdal & Ucko 2015). A UN-review from 2014 found that UN forces mostly shy away from using force altogether (United Nations 2014). A recent independent high-level review – the so-called HIPPO-report − also addressed challenges related to the perceived ineffectiveness of UN troop contributing countries (High-Level Independent Panel on Peace Operations 2015 paras 30, 108, 120). However, HIPPO did not name and shame particular countries, as this would be highly controversial. Nevertheless, we know that some troop contributors are willing to take more risks than others are, such as the Chadian contingent deployed to Mali and the Mongolian contingent deployed to South Sudan (Karlsrud 2015 p. 47; Mold 2017). There is in fact great variations in how different troop contributors relate to risk and the use of force to protect in UN peace operations (Providing for Peacekeeping 2018).

I systematically analyse if national *caveats* – restrictions closely linked to the will and ability to use force to protect – can be part of what explains variations in protection outcomes. The underlying hypotheses is that troops coming from countries that are more *willing* to use force to protect civilians from violence will systematically perform better than troops deployed by TCCs that are more *hesitant*.

Pre-emption

When civilians are under imminent threat of violence, pre-emptive protection operations may become necessary. Ideally, pre-emptive operations will deny perpetrators the opportunity to attack civilians altogether or at least significantly reduce their ability to inflict harm on civilians. While this aspect is overlooked in the academic literature, the UN POC policy indicates that pre-emption is a critical component of effective protection:

> "When likely threats are identified and attacks against civilians are anticipated, pro-active measures are required to mitigate or eliminate them before violence occurs. This requires deterring a party or person(s) from committing hostile acts, or affecting their capacity to do so, including through the use of force […] (United Nations 2015a p. 10)

It is challenging to extract from the policy exactly *how* force is meant to pre-emptively counter different types of perpetrators. Still, it does highlight the necessity of "pro-active measures", which are dissimilar from the traditional reactive approach of most UN peace operations. I seek to investigate variations in outcomes of both reactive and pre-emptive UN protection operations, expecting successes and failures in both modes of operation.

Matching perpetrators of violence

Military theory offers insights on how UN military operations can better protect civilians under threat. Most notably, General (retired) Rupert Smith has written an account of how military force can be employed more wisely in intra-state conflicts "amongst the people" to increase its utility (Smith 2006). It is one of few volumes combining deliberations on the utility of force and concern for civilian life during contemporary armed conflict. Smith criticizes today's military interventions for their "deep and abiding confusion between *deploying* a force and *employing* force" (ibid., p.6). To remedy this confusion, Smith demonstrates how to increase the utility of military force by better understanding its four main functions and the contexts in which each function is most relevant:

i) *Amelioration*: Troops assist in delivering humanitarian aid, put up refugee camps, observe ceasefires etc. Military force is only employed in self-defence (ibid. p.323). Traditional UN peacekeeping falls into this category. Tasks such as operating observation posts and checkpoints, patrolling, outreach, and engagement would be included in this function of force.

ii) *Containment*: Military forces prevent something, such as arms, planes and troops from spreading or passing through a barrier (ibid. 324). This can be done through maintaining arms-embargos and no-fly zones. This category would include inter-positioning of UN forces between armed opponents, or between perpetrators and a civilian population, as well as the establishment of demilitarized buffer zones and safe areas.

iii) *Deterrence/coercion*: This function involves a "wider use of force", according to Smith (ibid). Military forces are used to pose or carry out a threat, in order to 'change or form' the opposition's intentions. When force is actually employed, it is used to coerce. UN military forces sometimes undertake cordon and search operations, and perform joint military operations with host-state security forces targeting opposing forces, both of which would fall into this category. Mostly, UN peace operations rely heavily on being present in many locations, implicitly expecting a deterrent effect from the presence itself. According to Smith, however, deterrence does not work unless there is a credible threat of coercion when it fails.

iv) *Destruction*: Implies using military force "to attack the opposing force in order to destroy its ability to prevent the achievement of the political purpose", according to Smith (pp.324-5.). This traditional understanding of military force is a rare function of force in UN missions. However, the Force Intervention Brigade (FIB), which is an integrated part of the UN operation in the Democratic Republic of the Congo (DRC), has a mandate to "neutralize" armed groups through "targeted offensive operations".

These four functions of force would seemingly be instructive principles for devising a military strategy to protect civilians from violence. However, Smith seems to underplay the agency of the opponent – the perpetrators of violence – by mostly focusing what his own forces can and cannot do. Alexander Beadle has therefore used Smith's four functions as a point of departure for developing his own theory on the utility of force to protect civilians which brings in the agency of perpetrators (Beadle 2011, 2014). Beadle argues that knowing *why* and *how* armed groups use violence against civilians is a critical first step in order to determine the appropriate military countermeasures, or functions of force, to protect them. Mirroring Smith's four functions of force, he finds that perpetrators can employ four types of violence against civilians:

i) *Impairment*: Fostering insecurity by threatening civilian life without physically targeting civilians (Beadle 2014 p. 10). Perpetrators may impair civilian security by virtue of their threatening presence or by using civilians as human shields.

ii) *Incitement*: Using violence against civilians to spread fear and insecurity, including through improvised explosive devices and suicide bombers (ibid.). Perpetrators are not seeking to kill as many civilians as possible, but rather to undermine the government's ability to protect its own citizens.

iii) *Deterrence/coercion*: Using violence to change civilian behaviour, often to deter collaboration with the opposition or to coerce populations into compliance (ibid.).

iv) *Destruction*: Using violence to directly destroy civilians (or civilian installations), such as during genocide and mass killings (ibid.).

Beadle's core argument is that to find utility of force to protect, the function of force employed by the protector must *match* the type of violence applied by the perpetrator (Beadle 2011 pp. 35–6). The core phrase – matching – needs unpacking. Beadle explains that, if a perpetrator aims to "destroy" an ethnic group, the protector will not find utility of force by "ameliorating" the situation by merely supporting the delivery of humanitarian aid. In this situation, greater utility of force is found in matching the perpetrator, by *destroying* his ability to conduct mass killings. Conversely, if a perpetrator uses "incitement" or "impairment" against civilians to undermine the legitimacy of a government, using *coercive* or *destructive* force against them is likely to lead to stronger incentives to scale up attacks against civilians. In addition, if the most violent functions of force are applied, they risk causing more harm during operations than otherwise would occur in these less violent situations. Instead, "containment" and "amelioration" are better suited to protect civilians in such scenarios. Consequently, to maximize the utility of force, protectors must *match* the perpetrator's violence against civilians. Table 1 below illustrates how military forces ideally can match the four ways perpetrators use violence against civilians in order to protect civilians more effectively.

Perpetrator violence against civilians	**Protector use of military force to protect**
Impairment (e.g. presence of armed actors and constant threat of armed clashes)	*Amelioration* (e.g. presence of observers reporting human rights violations)
Incitement (e.g. indiscriminate attacks by insurgents in government-held areas)	*Containment* (e.g. creation of weapon-free zones, counter-IED operations)
Deterrence or coercion of civilians (e.g. threats or retaliatory attacks against civilians associated with the enemy, or demonstrative violence to make people flee)	*Deterrence or coercion of the perpetrators* (e.g. threats or actual use of force to alter the willingness to target civilians through robust show of force or punishing attacks)
Destruction of civilian life or property (e.g. massacres or scorched earth policies)	*Destruction of perpetrator capabilities* (e.g. neutralization of rebel forces)

Table 1 Perpetrator's use of violence vs. protector's use of military force[3]

In a first empirical test of Beadle's theory, I map different types of violence against civilians as well as the function of force used to protect. This enables an analysis of to what degree UN forces have been able to match perpetrators of violence in each particular case, and if that appear to influence outcomes across operations.

Exploring causal pathways towards successful protection outcomes

The systematic comparison of cases rests on a sub-set of 126 cases derived from the UNPOCO-dataset. The main criterion for case selection has quite simply been sufficient depth and quality of information. This approach to case selection is not ideal. However, it remains the best available option as long as we lack openly available systematic reporting on all potential cases of interest. Each case has been calibrated according to standard principles for fsQCA (Schneider & Wagemann 2012). The datasets underpinning the analysis will be made

[3] This table was first published in a book chapter authored by Alexander Beadle and the author titled "The utility of force to protect in UN peace operations" in The use of force in UN peacekeeping. Peter Nadin (ed.). Routledge 2018.

publically available, containing the deliberations and scores for each case, facilitating critique of the choices made.

The outcome

The outcome variable, or just the outcome, estimates degrees of success of UN military protection operations. I have applied a combination of counterfactual reasoning, my understanding of the modus operandi of the specific perpetrator in each case, as well as case specific knowledge in order to score variation in the outcomes. First, I ask of each case what is likely to have occurred without a UN military intervention. As such, I try to establish a counterfactual "baseline" of a possible world where the UN did *not* intervene, to be able to analyse what effect the intervention had in real life. I try to minimize the changes to the possible world by only removing one counterfactual condition, i.e. the absence of a military effort to protect. This baseline rests on case specific knowledge about the modus operandi of each particular perpetrator of violence. I also lean on the threat-scenarios developed by Beadle that captures generic traits from a wide range of similar perpetrators (Beadle 2014). Second, I then compare the possible world with the actual outcome after UN intervention, leading to an analysis of whether few or many civilians were protected in each case. As such, I do not attempt to explore longer-term effects of the protection operation, which would potentially undermine the value of the counterfactual reasoning by introducing second-order effects. Although this approach provides rigor to analyse the effect of UN military efforts to protect, it remains challenging to derive how and to what the degree the particular UN military response influenced the perpetrators of violence. It is pertinent to state already at this point that it is only possible to *estimate* the outcomes of UN protection operations and the findings should be read in that light.

Operationalized as a fuzzy set, rather than a dichotomous – crisp – set, the outcome includes cases at the extreme ends of the scale as well as two "fuzzy" variations in between. Operations are scored as 'everyone protected" (1.0) in cases where UN peacekeepers protected all potential victims in a specific area. Protection operations are coded and scored as "many protected" (0.75) when UN troops used force to protect quite effectively, although *some* civilians were still killed and/or harmed. Protection operations are scored as "few protected" (0.25) when UN troops used force to protect, but *many* civilians were still killed or harmed. Operations are assessed as 'no one protected' (0.0) in cases where UN forces have failed to protect victims in a specific area at a certain time, despite having intervened militarily.

Table 2 below shows that 21 out of 126 operations were assessed as "everyone protected", 49 operations were assessed as "many protected", 46 operations were scored as "few protected" and 10 operations were scored as "no-one protected". Although UN troops saw more positive outcomes (70) than negative (56) according to these numbers, it is not possible to suggest that protection operations have been successful more often than not. The cases are selected based on the quality of information, and as such, the distribution only reflects which cases are selected.

	Number of operations	**Everyone protected**	**Many protected**	**Few protected**	**No-one protected**
Total	126 (100 %)	21 (16.7 %)	49 (38.9 %)	46 (36.5 %)	10 (7.9 %)

Table 2 Estimated outcomes of 126 UN military protection operations in Africa, 1999–2017

Deterrent presence

Troop-to-population ratios, seeking to reflect the deterrent presence of the uniformed component of UN peace operations, are measured using monthly data on uniformed UN deployments in combination with data on the national population size from the UN and the

World bank (United Nations 2018; United Nations Department of Economic and Social Affairs 2016; World Bank 2018). The data on uniformed UN deployments are identical to what recent studies use while investigating how the size of UN operations correlate with civilian casualties (Hultman et al. 2013b, 2014). Actual deployment numbers in the area of each operation and local population numbers would have captured this condition more precisely. However, such data are not easily available.

The anchor points for membership scores in this set are calibrated according to existing theories on troop-to-population ratios adapted to a UN setting. Full membership in this set ("fully in" (1.0)) is assigned to cases with a troop-to-population ratio better than 1:100, which is half the amount of troops needed for successful outcomes as ascribed by Quinlivan (1:50). The reason for this modification is that UN operations are almost never set up for combat operations; they operate with the consent from host authorities, and do so impartially. Consequently, peacekeeping should require fewer troops than counterinsurgency operations. Partial membership in this set is assigned to cases that fall between the 1:100 troop-to-population ratio and the cut-off point at 1:500, receiving the "mostly in"-score of 0.75. The cut-off point is determined by the ratio suggested by Goode (1:357), although slightly increased to better reflect the fact that UN forces mostly operate in non-combat environments. The "mostly out"- score (0.25) is given to cases with a troop ratio between the cut-off point 1:500 and the "fully out"-score (0.0), which has been set at 1:1000.

Risk-willingness

Some troop contributors are − for many good reasons − reluctant to risk the lives of their own forces for any purpose. Others are more principally against the expanding agenda of UN peace operations, which includes the use of force to protect civilians from violence (Bellamy & Williams 2013). Yet others are more "forward leaning", accepting a higher degree of risk to

protect a third party from harm, and principally more open to perform robust military operations under the UN flag. I investigate whether the official stance of UN troop contributors are reflected in actual operations, systematically affecting the outcomes of operations across time and UN missions.

Accordingly, different TCCs are ascribed different memberships − either "in" (1.0) or "out" (0.0) − in a crisp set that captures their willingness to use force to protect civilians in the context of UN peace operations. Membership scores are based on existing literature, official national policies, statements in the UN General Assembly, as well expert opinions on how they operate on the ground (Bellamy & Williams 2013; Chesterman 2004; Government of Rwanda 2015; 'Providing for Peacekeeping' 2016; United Nations 2010, 2015b). In many cases, however, more than one TCC have been involved in the operations. In order to reflect this qualitative difference between cases, I have added a third score for the QCA analysis. If one or more of the TCCs involved in a case come from a country coded as "willing", these cases receive the membership score 0.75 ("fairly willing"). The underlying hypothesis is that the presence of at least one "willing" troop contributor will have some positive effect on the outcome.

Pre-emption

I seek to explore whether UN protection operations are more effective in reactive or pre-emptive mode. Accordingly, all 126 cases have been coded according to the type of operation UN forces have conducted to protect. Forty-three (43) of the 126 cases are coded as "pre-emptive" (scored 1.0), while the remaining 83 cases are "reactive" (scoring 0.0). As such, this is also a crisp-set, where cases are either "in" or "out" of the set. It follows that pre-emptive operations are those cases where UN forces have tried to militarily intervene *before* attacks against civilians materialized. These can include cordon and search operations, as well as

direct military confrontations. Conversely, "reactive" operations *respond* to situations where violent attacks on civilians are already underway, and can include situations where UN troops sought to provide deterrent presence, failing to do so, and had to use of force as last resort, defended their own or IDP- camps from attacks, and hot pursuits of perpetrators after attacks against civilians had taken place.

Matching the perpetrators of violence

According to the only existing theory on how to maximize the utility of force to protect civilians, military protectors must *match* the perpetrator's violence against civilians (Beadle 2011, 2014). This condition has been operationalized by first ascribing one or more functions of force to the protector in each case and then assessing the type of violence committed against civilians by the perpetrator, before comparing the two in order to evaluate if the use of force matches the violence by the perpetrator. Through a crisp-set approach, a "match" is scored 1.0 ("in" the set) while a "mismatch" scores 0.0 ("out" of the set). In 99 cases, the protectors have matched the perpetrators, while the remaining 27 are coded as a mismatch.

Necessary and sufficient conditions

In this section, I present the results of the QCA-analysis, which is performed in two steps. The first step is an analysis of necessary conditions and the second of potential causal pathways – i.e. *combinations of necessary and sufficient conditions* – producing successful protection outcomes across cases. Both analyses rest on the calibrations presented earlier. Together, the 126 cases now form a so-called QCA matrix, where all cases' membership scores in all condition sets and the outcome set are compiled (see Annex A). I use QCA-software developed by Charles Ragin to perform the analysis (Ragin et al. 2006). Although UNPOCO covers the period from 1999 to 2017, there were no reported cases identified from 1999, 2001,

and 2002. As such, this is also the case for the QCA-matrix. All ten UN missions represented in UNPOCO also appear in the QCA matrix.

Analysis of necessary conditions

The first analytical step in QCA is to control for the presence of necessary conditions. A condition is necessary "if, whenever the outcome Y is present, the condition is also present. In other words, Y cannot be achieved without X" (Schneider & Wagemann 2012 p. 69). A necessary condition is as such a super-set of the outcome. Table 3 below portrays the results of the analysis.

Condition	Consistency	Coverage
Deterrent presence (*deter*)	0.411552	0.644068
Risk-willingness (*risk*)	0.657040	0.583333
Pre-emption (*preempt*)	0.480144	0.773256
Matching (*match*)	0.902527	0.631313

Table 3 Analysis of necessary conditions for the presence of positive outcomes

The software performs two analyses to determine whether a particular condition is necessary for the outcome. First, a consistency analysis – assessing "how far the outcome can be considered a subset of the condition" – and second, a coverage analysis – measuring "the relevance of a necessary condition" (Schneider & Wagemann 2012 pp. 143, 147). According to common QCA-standards the *consistency* threshold should at least be set at 0.9 (Ragin 2006; Schneider & Wagemann 2012 p. 143). Among the four conditions analysed here, only one – matching the perpetrators of violence (*match*) – portrays a value that fulfils the consistency threshold for a necessary condition, just breaching the 0.90 threshold, with a consistency score of 0.902. From the QCA-matrix we can derive that 70 cases of military UN protection operations portray either fully successful outcomes (21) or partially successful outcomes (49). Matching occurred in 68 of these 70 cases. This fact explains the high consistency score, although the condition is not *always* present when a fully successful or partially successful

outcome is present. Deterrent presence, risk-willingness and pre-emption all score well below the suggested 0.90 threshold. It follows that neither good troop-to-population ratios, risk-willingness, or pre-emption is *necessary* to achieve successful outcomes.

The high consistency score of *matching* require further examination to determine whether this is a trivial or non-trivial relationship of necessity (ibid. pp 139-50). This is done with the help of the *coverage* analysis. The difference between trivial and non-trivial relationships can be portrayed with the help of Venn diagrams (see also Chapter 3).

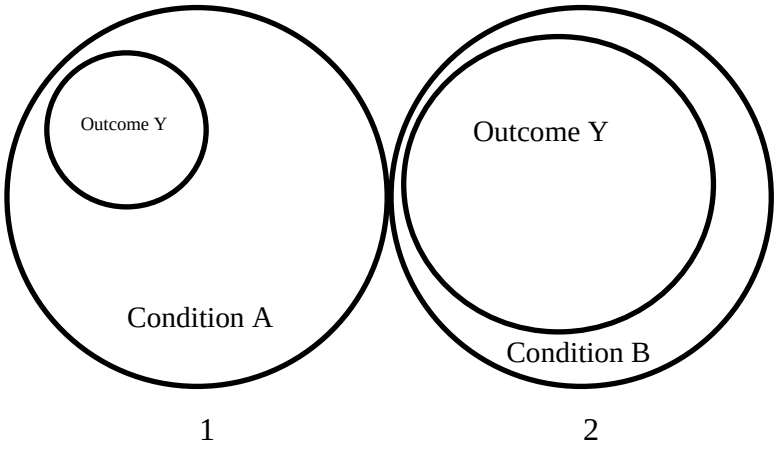

Figure 1 *Venn-diagrams portraying the logic of a trivial (1) and non-trivial (2) necessary condition*

Both Venn-diagrams in Figure 1 portray the fundamental logic of a necessary condition, in that the conditions are super-sets of the outcome. However, they also show different degrees in this relationship. Venn diagram 1 depicts a trivial relationship, while diagram 2 depicts a relevant, non-trivial, relationship. Schneider and Wagemann provides a fictive example to explain the difference, relayed here with slight modifications (Schneider & Wagemann 2012 p. 145). Imagine that the set Outcome Y is speeches in a country's parliament when parliamentarians curse. Condition A is the set of parliamentarians born in the country, while Condition B is the set of male parliamentarians. Although both conditions are necessary for

the outcome, being a male member of parliament is much more relevant (non-trivial) to explain the cursing phenomenon.

Does the coverage score of 0.631 indicate a relevant – non-trivial – set relationship? There are no standard thresholds provided by the literature. However, according to an example provided by Schneider and Rohlfing, a coverage score of 0.65 indicates a non-trivial relationship (Schneider & Rohlfing 2013 p. 565). Arguably, the 0.631 result from my coverage analysis seemingly do support the claim that matching is indeed relevant for positive outcomes. However, some doubts remain. Again according to Schneider and Wagemann, necessity trivialness can occur in two ways (Schneider & Wagemann 2012 p. 146). One, the condition set is much larger than the outcome set (ref. Venn diagram 1 above), and two, both the condition and the outcome are large sets and roughly equal in size, i.e. close to being constant. It follows that because of their size, both the outcome and the condition cover almost the entire universe of cases (ibid). The first phenomenon does not appear in my case, while the latter phenomenon could be relevant. Unfortunately, the software used for this analysis does not fully capture the second type of necessity trivialness (ibid. pp. 233-237).

So where does this leave the coverage analysis of matching as a necessary condition? Since the software provides few answers on the particular type of trivialness potentially emerging from my results, I therefore return to the QCA matrix to shed some additional light on this aspect. Although matching is usually present alongside successful outcomes, I also find that UN troops matched the perpetrators of violence in 31 out of 56 cases where *few* or *no* civilians were protected. Negative outcomes are not part of the necessity analysis, and as such, this fact does not influence the coverage score. However, it does indicate that although matching seems relevant for almost all positive outcomes, it also appears quite often alongside failures to protect. I leave the analysis of necessary conditions here, moving

forward with further investigations of whether matching occurs alongside other necessary conditions in causal pathways towards successful outcomes.

Causal pathways

The second analytical step in QCA is to search for causal pathways, or combinations of necessary and sufficient conditions leading to the outcome. Again, the QCA software is used to perform the analysis. Now, the method introduces a truth table, which sorts all cases into combinations of sufficient conditions leading towards the outcome in different rows (see Table 4). Before using the analytical tools provided by the software, the researcher must decide the consistency cut-off point for relevant solutions, which determines which rows of combinations will be part of the analysis. This is critical, as the cut-off point will influence the causal pathways' consistency and coverage scores. From the truth table below, it follows that I have had to decide between a cut-off point between 0.79 and 0.81 (marked in bold).

deter	risk	preempt	match	number	raw consist.	PRI consist.	SYM consist.
1	0	1	1	2	1.000000	1.000000	1.000000
1	1	1	1	13	0.913043	0.906977	0.951220
0	0	1	1	12	**0.810345**	0.717949	1.000000
0	1	1	1	15	**0.796610**	0.750000	0.818182

Table 4 Relevant rows from the truth table derived from the analysis of the QCA matrix

A cut-off point at 0.81 only captures 27 cases – possibly increasing solution consistency scores, but certainly decreasing their coverage. A cut-off point at 0.79 will add 15 more cases to the analysis − risking a lower solution consistency score, but increasing the chances for a higher coverage score. I opted for the lower cut-off point at 0.79, which yielded the following results:

Combinations	Raw coverage	Unique coverage	Consistency	Solution coverage	Solution consistency
Match*preempt	0.480144	0.480144	0.791667	**0.480144**	**0.791667**

Table 5 Intermediate solution analysis of the truth table derived from the QCA matrix

The analysis only proposes one causal pathway based on these choices and calibrations, the combination of *pre-emptive operations* that also *match* the perpetrators of violence. Although this combination of conditions scores reasonably well on solution consistency (0.79), it covers less than half of the outcome set (0.48). I also performed a robustness check, analysing the truth table with a higher cut-off point (0.81). Now, a slightly more consistent solution appeared. In addition, matching and pre-emption was now joined by deterrent presence, i.e. good troop-to-population ratios (match * preempt * deter), yielding a consistency score of 0.85. However, as expected, this solution only covered about a third of the outcome set (0.33).

What can we derive from this analysis? The most interesting is perhaps the results that do not appear. First, favourable troop-to-population ratios are not alone or together with other conditions able to explain positive protection outcomes across operations at the tactical and operational levels. Being present in large enough numbers is just not enough to protect civilians from violence from imminent threats. However, troop-to-population ratios do seem to be *part* of the explanation in about 1/3 of positive outcomes, but that also indicates that this condition demands other explanatory factors to become relevant. This provides nuance to our existing knowledge about the overall conflict reducing effect of large uniformed components of UN peace operations. Although the presence of thousands of troops reduce the severity of conflict, it does not necessarily explain how UN troops fare in protecting civilians from different types of perpetrators, continuing to attack civilians also in the presence of Blue Helmets.

Second, Blue Helmets' risk-willingness does not appear to be part of the answer to how they fare in protecting civilians from imminent threats across conflicts and time. Keep in mind that I do not capture the events where civilians were under threat *without* a military UN intervention. Hence, a pool of more risk willing troop contributors might have improved the

UN's results overall. However, what we can gather from openly accessible reporting, troops' country of origin is not able to systematically explain outcomes across cases. Combined with the first insight, it also underlines another main point: It seems to matter more what UN troops do rather than where they are from.

Less surprising is the finding that pre-emptive protection operations tailored to particular threats − matching the perpetrators of violence − are important parts of the causal pathways towards successful outcomes. The analysis of necessary conditions further strengthened the relevance of *matching,* which is present in almost all successful outcomes. Now we know that these two *combined* provide the most consistent solution across almost half of the cases. Nevertheless, although the QCA analysis does provide interesting insights, the results remain inconclusive. It remains a fact that the majority of outcomes must be explained by other conditions.

Conclusion and implications

I set out to explore conditions explaining UN military protection successes at the tactical and operational levels. Four promising causal condition candidates were derived from existing literature: i) deterrent presence, ii) risk-willingness, iii) pre-emption, and iv) matching the perpetrators of violence. With the help of fuzzy-set Qualitative Comparative Analysis of 126 cases derived from a new and unique dataset, I found that matching the perpetrators of violence emerged as the only *necessary* condition for successful outcomes. However, while matching occurs in 68 out of 70 cases with successful outcomes, matching also occurs when UN troops fail to protect. Second, I found that pre-emption and matching the perpetrators of violence came together in a causal pathway to explain almost half of the positive outcomes. As such, it is not enough to be in the right place at the right time to intervene before perpetrators attack, the use of force must simultaneously be tailored to the particular threat civilians are facing. Equally interesting is finding that troop-to-population ratios are not part

of any causal pathway. Although we know that large uniformed components decrease conflict intensity and civilian targeting across operations, I did not find this effect reflected in the outcomes of protection operations at the tactical and operational levels (Hultman 2016; Hultman et al. 2013a, 2014). The same seems true for risk-willingness. Having risk-willing troops taking part of operations does not necessarily lead to better outcomes across cases. However, as many cases remain unexplained, future studies would benefit from applying comparative qualitative case study designs systematically exploring proximate causal conditions at the micro-levels of analysis. This would enable a more holistic understanding of what works when UN troops use force to protect.

These findings may be relevant for the policy and practice of UN military protection efforts. First, in order to match and pre-empt the perpetrators of violence, it is essential to understand how, why, and with what perpetrators attack civilians. Although the UN system is able to collect a lot of relevant information about the conflict dynamics in areas they deploy – including the characteristics of the perpetrators of violence − the organization has thus far not been able to develop useful POC-specific threat-assessment methods for those set to protect by force. Some attempts exist, but they remain rather generic, failing to take into account the various motivations of different perpetrators to attack civilians , the wealth of information and research we already have about different armed groups that target civilians, as well as lessons learned from military efforts to protect (UN Integrated Training Service 2018).

Second, in order to match and pre-empt different perpetrators of violence, troop-contributing countries need better pre-deployment scenario training that both rests on systematic knowledge about different perpetrators of violence and about what military efforts have worked in the past to protect civilians against similar perpetrators. This knowledge is equally important in order to know when force is likely to have little impact on civilian security, or even increase the threat to civilians.

Third, in order for Blue Helmets to plan and implement tailored operations matching the perpetrators of violence, they need a better working UN intelligence system. In 2017, the UN published its first comprehensive intelligence policy (United Nations 2017). While this is a significant step forward, much work remains before UN troops on the ground are provided with actionable intelligence to facilitate more effective protection operations.

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Annex A QCA data matrix

From left to right, the columns contain: case-ID (corresponding to case-ID in UNPOCO), deterrent presence (*deter*), troop contributors' risk willingness (*risk*), pre-emptive/ reactive operations (*preempt*), the ability to match perpetrators by force (*match*), and the outcome variable (*outcome*). This matrix combines fuzzy and crisp scores.

No	caseID	deter	risk	preempt	match	outcome
1	SierraLeone1	0.75	0.75	1.0	1.0	0.25
2	DRC1 (MONUC)	0.0	0.75	0.0	1.0	0.75
3	Liberia1	0.25	0.75	0.0	1.0	0.75
4	DRC2 (MONUC)	0.0	1.0	0.0	0.0	0.25
5	DRC3 (MONUC)	0.0	0.0	0.0	0.0	0.25
6	Liberia3	0.75	0.0	0.0	1.0	0.75
7	Liberia4	0.75	0.0	1.0	1.0	1.0
8	Liberia5	0.75	0.0	0.0	1.0	0.75
9	Liberia6	0.75	0.75	0.0	1.0	0.75
10	DRC4 (MONUC)	0.0	0.0	0.0	1.0	0.25
11	DRC5 (MONUC)	0.0	0.0	1.0	1.0	0.75
12	DRC8 (MONUC)	0.0	0.0	1.0	1.0	0.75
13	DRC10 (MONUC)	0.0	0.75	1.0	1.0	0.25
14	DRC12 (MONUC)	0.0	0.0	1.0	1.0	0.75
15	DRC13 (MONUC)	0.0	0.0	0.0	0.0	0.25
16	DRC14 (MONUC)	0.0	0.0	1.0	1.0	0.75
17	DRC15 (MONUC)	0.0	0.0	1.0	1.0	0.75
18	DRC16 (MONUC)	0.0	0.0	1.0	1.0	0.75
19	IvoryCoast1	0.0	0.0	0.0	1.0	0.75
20	Liberia7	0.75	1.0	0.0	1.0	0.25
21	DRC17 (MONUC)	0.0	0.0	1.0	1.0	0.75
22	DRC19 (MONUC)	0.0	0.75	1.0	1.0	0.25
23	Liberia8	0.75	0.0	0.0	1.0	0.75
24	DRC21 (MONUC)	0.0	0.0	1.0	1.0	0.75
25	DRC22 (MONUC)	0.0	0.0	0.0	1.0	0.75
26	DRC23 (MONUC)	0.0	0.0	0.0	1.0	0.25
27	Darfur1	0.75	1.0	0.0	1.0	0.75
28	DRC24 (MONUC)	0.0	0.0	0.0	1.0	0.75
29	DRC25 (MONUC)	0.0	0.0	0.0	0.0	0.25
30	Sudan1	0.0	0.0	1.0	1.0	0.75
31	Sudan2	0.0	0.0	0.0	0.0	0.75
32	Liberia9	0.75	0.0	0.0	1.0	0.25
33	Liberia10	0.75	0.0	0.0	1.0	0.25
34	DRC26 (MONUC)	0.0	0.0	0.0	1.0	0.75
35	DRC27 (MONUSCO)	0.0	0.0	0.0	0.0	0.0
36	DRC28 (MONUSCO)	0.0	0.0	1.0	1.0	0.75
37	Darfur2	0.75	1.0	0.0	0.0	0.25

38	SouthSudan1	0.0	0.0	0.0	1.0	0.75
39	IvoryCoast2	0.0	1.0	1.0	1.0	0.75
40	IvoryCoast3	0.0	1.0	1.0	1.0	0.75
41	Abyei1	1.0	1.0	0.0	1.0	0.75
42	Abyei2	1.0	1.0	1.0	1.0	1.0
43	Abyei3	1.0	1.0	0.0	1.0	0.75
44	Abyei4	1.0	1.0	1.0	1.0	0.75
45	Abyei5	1.0	1.0	0.0	1.0	0.75
46	Abyei6	1.0	1.0	1.0	1.0	1.0
47	DRC44 (MONUSCO)	0.0	0.0	0.0	0.0	0.25
48	DRC45 (MONUSCO)	0.0	0.0	1.0	1.0	0.75
49	DRC47 (MONUSCO)	0.0	0.0	0.0	1.0	0.75
50	DRC49 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
51	Darfur4	0.75	1.0	0.0	0.0	0.25
52	Darfur5	0.75	1.0	0.0	1.0	0.75
53	SouthSudan3	0.25	0.0	1.0	1.0	1.0
54	SouthSudan5	0.75	0.75	0.0	0.0	0.25
55	SouthSudan6	0.75	0.0	0.0	0.0	0.25
56	Abyei7	1.0	1.0	1.0	1.0	0.75
57	Abyei8	1.0	1.0	0.0	1.0	1.0
58	Abyei9	1.0	1.0	0.0	1.0	0.75
59	Abyei10	1.0	1.0	1.0	0.0	0.0
60	Abyei11	1.0	1.0	0.0	1.0	1.0
61	DRC51 (MONUSCO)	0.0	0.0	0.0	1.0	0.75
62	DRC53 (MONUSCO)	0.0	0.0	0.0	1.0	0.75
63	DRC54 (MONUSCO)	0.0	1.0	0.0	1.0	0.75
64	DRC55 (MONUSCO)	0.0	0.75	1.0	1.0	0.75
65	DRC56 (MONUSCO)	0.0	1.0	0.0	1.0	0.75
66	DRC57 (MONUSCO)	0.0	1.0	0.0	1.0	0.25
67	Darfur6	0.75	1.0	0.0	0.0	0.25
68	Darfur7	0.75	1.0	0.0	0.0	0.25
69	Darfur9	0.75	1.0	0.0	0.0	0.25
70	Mali1	0.0	0.75	0.0	0.0	0.25
71	SouthSudan10	0.25	0.75	0.0	1.0	0.0
72	SouthSudan11	0.25	0.0	0.0	0.0	0.25
73	SouthSudan12	0.25	0.0	0.0	0.0	0.25
74	SouthSudan13	0.25	0.75	0.0	0.0	0.75
75	Abyei12	1.0	1.0	1.0	1.0	1.0
76	Abyei13	1.0	1.0	0.0	1.0	0.0
77	Abyei14	1.0	1.0	0.0	1.0	0.0
78	Abyei15	1.0	1.0	0.0	1.0	0.0
79	DRC61 (MONUSCO)	0.0	1.0	1.0	1.0	0.75
80	DRC63 (MONUSCO)	0.0	0.0	0.0	0.0	0.25
81	DRC64 (MONUSCO)	0.0	0.75	1.0	1.0	0.75

82	DRC66 (MONUSCO)	0.0	0.75	0.0	0.0	0.25
83	Darfur10	0.75	1.0	0.0	1.0	1.0
84	Darfur11	0.75	1.0	0.0	1.0	1.0
85	Mali2	0.0	1.0	1.0	1.0	1.0
86	Mali4	0.0	1.0	0.0	1.0	0.75
87	Mali5	0.0	1.0	1.0	1.0	1.0
88	Mali6	0.0	1.0	1.0	1.0	1.0
89	DRC68 (MONUSCO)	0.0	0.75	1.0	1.0	0.25
90	DRC69 (MONUSCO)	0.0	0.75	1.0	1.0	0.75
91	DRC70 (MONUSCO)	0.0	1.0	0.0	1.0	0.25
92	DRC71 (MONUSCO)	0.0	1.0	0.0	1.0	0.25
93	DRC72 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
94	DRC74 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
95	DRC76 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
96	DRC77 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
97	DRC79 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
98	DRC81 (MONUSCO)	0.0	1.0	0.0	1.0	0.25
99	MALI9	0.0	0.75	0.0	1.0	0.75
100	DRC82 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
101	DRC83 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
102	DRC85 (MONUSCO)	0.0	1.0	0.0	1.0	0.75
103	DRC88 (MONUSCO)	0.0	1.0	1.0	1.0	0.25
104	DRC91 (MONUSCO)	0.0	1.0	0.0	0.0	0.25
105	DRC99 (MONUSCO)	0.0	1.0	0.0	0.0	0.25
106	Darfur13	0.75	1.0	1.0	1.0	1.0
107	Darfur14	0.75	1.0	1.0	1.0	1.0
108	Darfur15	0.75	1.0	1.0	1.0	1.0
109	DRC102 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
110	DRC103 (MONUSCO)	0.0	0.75	0.0	1.0	0.25
111	DRC106 (MONUSCO)	0.0	0.75	1.0	1.0	1.0
112	Darfur16	0.75	1.0	1.0	1.0	1.0
113	Darfur17	0.75	1.0	1.0	1.0	1.0
114	Abyei16	1.0	1.0	0.0	1.0	0.0
115	Abyei18	1.0	1.0	0.0	1.0	0.75
116	Abyei19	1.0	1.0	0.0	1.0	0.0
117	Abyei20	1.0	1.0	1.0	1.0	1.0
118	Abyei21	1.0	1.0	0.0	0.0	0.0
119	Liberia15	0.25	0.75	0.0	1.0	0.75
120	IvoryCoast6	0.25	0.75	0.0	0.0	0.25
121	SouthSudan15	0.25	0.75	0.0	0.0	0.0
122	CAR1	0.25	0.75	1.0	1.0	1.0
123	CAR4	0.75	0.0	0.0	0.0	0.25
124	CAR6	0.75	1.0	1.0	1.0	1.0

125	CAR7	0.75	0.0	1.0	1.0	0.75
126	CAR8	0.75	0.75	0.0	1.0	0.25

Table 6 QCA-matrix

Annex B QCA calibrations

Deterrent presence — Troop-to-population ratios

Fuzzy score	Term	No.	Threshold	Case-IDs from UNPOCO (126)			
1.0	Fully in	20	<1:100	**UNISFA** Abyei1-16 Abyei18-21			
0.75	Mostly in	29	>1:100 <1:500	**UNAMSIL** SierraLeone1	**UNMIL** Liberia3-10	**UNAMID** Darfur1-2 Darfur4-7 Darfur9-11 Darfur13-17	**CAR** CAR4 CAR6-8
				UNMISS SouthSudan5-6			
0.25	Mostly out	10	>1:500 <1:1000	**UNMIL** Liberia1 Liberia15	**UNMISS** SouthSudan3 SouthSudan10-13 SouthSudan15	**UNOCI** IvoryCoast6	**CAR** CAR1
0.0	Fully out	67	>1:1000	**MONUC** DRC1-5 DRC8 DRC10 DRC12 DRC13-17 DRC19 DRC21-26	**MONUSCO** DRC27-28 DRC44-45 DRC47 DRC49 DRC51 DRC53-57 DRC61 DRC63-64 DRC66 DRC68-72 DRC74 DRC76-77 DRC79 DRC81-83 DRC85 DRC 88 DRC91 DRC99 DRC102-103 DRC106	**UNOCI** IvoryCoast1-3	**UNMIS** Sudan1-2
				UNMISS SouthSudan1	**MINUSMA** Mali1-2 Mali4-6 Mali9		

Table 7 *Troop-to-population ratio calibrations with fuzzy scores, descriptions, number of cases, ratio thresholds, and case-IDs from UNPOCO*

Risk-willingness

Crisp score	Description	# TCCs	TCCs		
1.0	Willing	26	Ethiopia Benin Burkina Faso Chad Egypt Gabon Gambia Guatemala Guinea	Ireland Malawi Mauritania Mongolia Nepal Netherlands Niger Nigeria Portugal	Rwanda Senegal South Africa Sweden Tanzania Togo Ukraine Uruguay

0.0	Hesitant	12	Bangladesh Cambodia China Egypt	Ghana India Indonesia Jordan	Kenya Morocco Pakistan Philippines

Table 8 Calibration of TCCs risk-willingness to use force to protect

Fuzzy score	**Description**	**No.**	**Case-IDs from UNPOCO**			
1.0	Willing	54	**MONUC** DRC2	**MONUSCO** DRC54 DRC56-57 DRC61 DRC70-71 DRC81	DRC85 DRC88 DRC91 DRC99	**UNAMID** Darfur1-2 Darfur4-7 Darfur9-11 Darfur13-17
			UNOCI IvoryCoast2-3	**UNISFA** Abyei1-16 Abyei18-21		**UNMIL** Liberia7
			MINUSMA Mali2 Mali4-6	**MINUSCA** CAR6		
0.75	Fairly willing	32	**MONUC** DRC1 DRC10 DRC19	**MONUSCO** DRC49 DRC55 DRC64 DRC66 DRC68-69 DRC72	DRC74 DRC76-77 DRC79 DRC82-83 DRC102-103 DRC106	**UNMISS** SouthSudan5 SouthSudan10 SouthSudan13 SouthSudan15
			UNOCI IvoryCoast6	**MINUSCA** CAR1 CAR8		**UNMIL** Liberia1 Liberia6 Liberia15
			MINUSMA Mali1 Mali9	**UNAMSIL** SierraLeone1		
0.0	Hesitant	40	**MONUC** DRC3-5 DRC8 DRC12-17 DRC21-26	**MONUSCO** DRC27-28 DRC44-45 DRC47	DRC51 DRC53 DRC63	**UNMISS** SouthSudan1 SouthSudan3 SouthSudan6 SouthSudan11-12
			UNMIS Sudan1-2	**UNOCI** IvoryCoast1		**UNMIL** Liberia3-5 Liberia8-10
			MINUSCA CAR4 CAR7			

Table 9 Calibration of troop contributors' willingness to use force to protect, including constellations of willing/hesitant TCCs, fuzzy scores, description, number of cases and case-IDs from UNPOCO

Pre-emption

Crisp score	Description	No.	Case-IDs from UNPOCO			
1.0	Pre-emptive	43	**UNAMSIL** SierraLeone1	**UNMIL** Liberia4		**UNMIS** Sudan1
			MONUC DRC5 DRC8 DRC10 DRC12 DRC14-17 DRC19 DRC21	**MONUSCO** DRC28 DRC45 DRC55 DRC61 DRC64 DRC68-69 DRC88 DRC106		**UNOCI** IvoryCoast2-3
			UNISFA Abyei2 Abyei4 Abyei6-7 Abyei10 Abyei12 Abyei20	**UNMISS** SouthSudan3		**MINUSMA** Mali2 Mali5-6
			UNAMID Darfur13-17	**MINUSCA** CAR1 CAR6-7		
0.0	Reactive	83	**UNMIL** Liberia1 Liberia3 Liberia5-10 Liberia15	**UNAMID** Darfur1-2 Darfur4-7 Darfur9-11		**UNMIS** Sudan2
			MONUC DRC1-4 DRC13 DRC22-27	**MONUSCO** DRC44 DRC47 DRC49 DRC51 DRC53-54 DRC56-57 DRC63 DRC66 DRC70-72	DRC74 DRC76-77 DRC79 DRC81-83 DRC85 DRC91 DRC99 DRC102-103	**UNISFA** Abyei1 Abyei3 Abyei5 Abyei8-9 Abyei11 Abyei13-16 Abyei18-19 Abyei21
			MINUSMA Mali1 Mali4 Mali9	**UNOCI** IvoryCoast1 IvoryCoast6		**UNMISS** SouthSudan1 SouthSudan5-6 SouthSudan10-13 SouthSudan15
			MINUSCA CAR4 CAR8			

Table 10 Calibration of pre-emptive/ reactive character of UN military protection operations, including fuzzy scores, description, number of cases, and case-IDs from UNPOCO.

Matching the perpetrators of violence

Crisp score	Description	No.	Case-IDs from UNPOCO			
1.0	Match	99	**UNAMSIL** SierraLeone1	**MONUC** DRC1 DRC4-5 DRC8 DRC10 DRC12 DRC14-17 DRC19 DRC21-24 DRC26 DRC28	**MONUSCO** DRC45 DRC47 DRC49 DRC51 DRC53-57 DRC61 DRC64 DRC68-72	 DRC74 DRC76-77 DRC79 DRC81-83 DRC85 DRC88 DRC102-103 DRC106
			UNMIL Liberia1 Liberia3-10 Lieria15	**UNOCI** IvoryCoast1-3	**UNAMID** Darfur1 Darfur5 Darfur10-11 Darfur13-17	
			UNMIS Sudan1	**UNMISS** SouthSudan1 SouthSudan3 SouthSudan10	**UNISFA** Abyei1-9 Abyei11-16 Abyei18-20	
			MINUSMA Mali2 Mali4-6 Mali9	**MINUSCA** CAR1 CAR6-8		
0.0	Mismatch	27	**UNISFA** Abyei10 Abyei21	**MONUC** DRC2-3 DRC13 DRC25	**MONUSCO** DRC27 DRC44 DRC63 DRC66 DRC91 DRC99	
			UNAMID Darfur2 Darfur4 Darfur6-7 Darfur 9	**UNMIS** Sudan2	**UNMISS** SouthSudan5-6 SouthSudan11-13 SouthSudan15	
			MINUSMA Mali1	**UNOCI** IvoryCoast6	**MINUSCA** CAR4	

Table 11 Calibration of UN troops ability to match the perpetrators by force, including QCA scores, description, number of cases, and case-IDs from UNPOCO