Ontologically dirty knots: The production of numbers after the Srebrenica genocide

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Abstract
Approximately 8,000 boys and men were killed in the 1995 Srebrenica genocide. The victims were disappeared, killed and buried in secret mass graves. In this article, I examine how forensic anthropologists, demographers and forensic geneticists produced technolegal knowledge about the number of victims in the wake of the genocide; how those numbers were validated in legal proceedings against those held responsible; and, finally, how some have tried to destabilize the numbers in attempts to deny that a genocide was committed. While numbers, and the larger category of knowledge, take centre stage in the discussion, I use Srebrenica’s aftermath to introduce the concept of ontologically dirty knots, which is an analytical and methodological innovation that enables us to produce scholarly accounts of events, such as the Srebrenica genocide, that are characterized partly by secrecy, partly by controversy and partly by materiality. It ties together meaning and materiality, signals a process that continues to evolve, and suggests that narratives about what happened are the results of entanglements, action and friction that can be undone. In these respects, the article addresses current discussions on actor-network theory within critical security studies.

Keywords
Actor-network theory, critical security studies, denial, numbers, post-truth, Srebrenica genocide

Introduction
Approximately 100,000 persons were killed during the Bosnian War (1992–95). All of the warring sides committed atrocities in this bitter and complex conflict. In response to these war crimes, the United Nations established the International Criminal Tribunal for the former Yugoslavia (ICTY) in 1993. The 1995 Srebrenica massacre, which constituted an act of genocide, serves as an exemplar of the atrocities committed during the war (ICTY, 2001, 2010, 2016). To this day, the number of victims of the Srebrenica genocide has been the subject of debate. Approximately 7,000 victims have been identified and buried at the Potočari graveyard near Srebrenica, and, while just under 8,000 persons have been reported missing since the fall of Srebrenica, the Potočari memorial
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commemorates 8,372 victims. In the Serb areas of Bosnia and Herzegovina, however, the atrocities committed in July 1995 are played down, and the claim that there were 8,000 victims is fiercely denied. The number of Srebrenica victims is a highly debated issue that is politicized: it interferes in national narratives about victimhood, perpetratorhood and heroism (Aronson, 2013; Nettelfield, 2010). The stakes are high, not least as revision of historical facts and national narratives may lead to promoting conflict instead of peace (Elster, 2012: 93; Seybolt et al., 2013: 3). In this article, I narrate how various numbers have been established, validated and denied in the wake of the July 1995 Srebrenica genocide.

Srebrenica is a small municipality in the east of Bosnia and Herzegovina, near the border with Serbia. During the war, the UN Security Council declared it a safe area for the Bosnian Muslim minority in that area. Dutchbat, a Dutch battalion under UN command, was mandated to protect both the municipality and the individuals who had sought refuge there. The battalion’s headquarters was located in Potočari, seven kilometres from Srebrenica. In July 1995, the Bosnian Serb Army of Republika Srpska (or Vojksa Republike Srpska, VRS) took control of the Srebrenica area. Looking for protection from the VRS, many refugees moved to Dutchbat’s headquarters in Potočari. Unable to protect the Bosnian Muslim refugees, Dutchbat agreed to leave Potočari.1 Once the VRS was in control, soldiers began the process of transferring around 25,000 women, children and elderly persons from Potočari to territory under control of the Army of the Republic of Bosnia and Herzegovina. Boys and men were separated out, however, and taken to detention centres elsewhere. Meanwhile, another group of thousands of (mainly) men fled through the woods and hills towards Tuzla, a city that was also under the control of the Army of the Republic of Bosnia and Herzegovina. In order to reach safety, however, they had to cross approximately 80 kilometres of territory controlled by the VRS. During that march, hundreds of Bosnian Muslims were killed by the VRS and thousands captured. Those captured were also transported to detention centres.

Intentional killing of Bosnian Muslims by soldiers of the VRS started on 11 July 1995 and went on for approximately ten days. After the killings, heavy machinery was deployed to dig trenches and bury the thousands of bodies in unmarked mass graves. However, despite the almost total absence of independent observers (e.g. the Red Cross, journalists), the mass killings did not go unnoticed. US spy planes and military satellites, for example, photographed what appeared to be freshly dug mass graves. Madeleine Albright, at the time US ambassador to the UN Security Council, addressed the Council during a closed meeting on 11 August 1995 and showed satellite and spy-plane pictures. Although these pictures and related estimates of the number of bodies in the fresh graves did not provide detailed information, they substantiated claims that VRS forces had committed large-scale, systematic and intentional atrocities. Two months after the mass killings, in response to Albright’s address to the Security Council, VRS troops prepared to relocate the bodies of the victims from the primary graves in which they had first been buried to remote, ‘secret’ secondary graves (ICTY, 2016: 2302–2303). While some of these secret mass graves were discovered two or three years after the genocide (Stover and Peress, 1998), many became locations where material evidence of the events at Srebrenica would remain hidden for many years (Wagner, 2008). Even today, the bodies of an estimated 1,000 victims remain missing.

The use of heavy machinery to exhume the bodies from the initial mass graves and their subsequent transportation to clandestine burial sites caused severe dismembering, fragmenting and commingling of victims’ remains. With so many people missing, and even greater numbers of human remains recovered from many secondary mass graves, a challenge of epic proportions presented itself: How to determine how many persons had gone missing? How many had been killed? And how might one go about matching information about missing persons to thousands of sets of skeletonized remains? Or, put differently: how to establish reliable records about the category of missing persons, whose bodies are hidden and who cannot speak for themselves (see Rosenblatt, 2015;
Stover and Peress, 1998; Wagner, 2008)? In this article, I attend to these questions by describing how various arithmetical estimations regarding the number of missing, killed and forensically identified victims of the Srebrenica genocide were produced, how they became validated, and how those numbers have been subsequently contested by revisionists. I argue that materialities – human bones, mass graves, shovels, lists, DNA samples, mud, dirt – participate both in establishing and in destabilizing authoritative knowledge regarding the number of Srebrenica victims (see Nelson, 2015). In this respect, the article contributes to the growing body of literature within critical security studies and associated fields that are inspired by actor-network theory (see Braun et al., 2018; Smineck et al., 2013).

In considering how knowledge regarding the number of Srebrenica genocide victims has been produced, I build on Donna Haraway’s (1997) notion of ‘ontologically dirty’ to develop the notion of ontologically dirty knots as an analytical and methodological innovation that can be used to produce scholarly accounts of events, such as the Srebrenica genocide, that are characterized partly by secrecy, partly by controversy and partly by materiality (see Walters, 2014). Empirically attending to the rendering, validating and denying of the number of Srebrenica genocide victims, I articulate the methodologies of truthful and deceitful accounts about what happened. I first discuss actor-network theory as it developed and blossomed within science and technology studies, and how it subsequently travelled to critical security studies, before elaborating on the notion of ontologically dirty knots. Efforts to technologically enumerate how many Bosnian Muslims were killed, how the numbers produced were legally validated, and how technologically produced and validated numbers play a role in attempts to deny that what took place at Srebrenica was a genocide are subsequently described in order to articulate ontologies, dirtiness and knots. The article then ends with a reflection on the concept of ontologically dirty knots itself.

**Actor-network theory in science and technology studies and critical security studies**

The origins of actor-network theory within science and technology studies date back to the 1980s and 1990s, when scholars like Bruno Latour, Michel Callon and John Law introduced notions such as actant, actor-network, translation and generalized symmetry. These scholars used such notions to analyse and describe empirical phenomena such as Louis Pasteur’s microbes, scallop domestication, the development of electric cars and maritime expansion. In each of these articulate and thought-provoking case studies from the empirical world, commonsensical ideas about active humans and inert objects were tinkered with. Networks and semiotics were emphasized, thereby shifting attention from subjects and epistemology to objects and ontology (Law and Singleton, 2005).

Some scholars accused actor-network theory of being a simple and conservative method that risked objectifying everything, including human subjects (Collins and Yearley, 1992). Another fundamental critique was that it reproduced ‘winner-accounts’, a critique that was voiced most eloquently by Donna Haraway (1997) in her discussion of Latour’s (1987) *Science in Action*. Haraway (1997: 34) commented that Latour’s influential book was an agonistic, masculinist war-machine that works by ‘relentless, recursive mimesis. The story told is told by the same story. The object studied and the method of study mime each other.’ Actor-network theory tended to neglect the silent, the absent and the weak: it did not facilitate the other and otherness very well (Lee and Brown, 1994).

The proponents of actor-network theory addressed critiques of the actor-network theory’s politics by, for example, studying new practices in which politics and normativities were far more present than was the case with laboratories or mobility infrastructures. A key example is Annemarie Mol’s (2002) ethnography of lower-limb atherosclerosis, in which she develops the widely used notion of ‘enactment’. This is akin to performativity as developed by scholars like Goffman
(1978) and Butler (1990), and ‘suggests that activities take place – but leaves the actors vague. It also suggests that in the act, and only then and there, something is – being enacted’ (Mol, 2002: 33, emphasis in original). In Mol’s relational ontology, what an object is or becomes is not predetermined but is the effect of social and material connections with others. Such enacted objects do not come about by themselves but receive their qualities from, inter alia, things, people, animals, laws, knowledges and technologies with which they become semiotically and materially associated (Law, 2009; Mol, 2002, 2010).

Actor-network theory has been adopted and deployed in many other fields beyond science and technology studies, including analyses of legal practices (Cloatre and Pickersgill, 2014; Faulkner et al., 2012), economics and markets (MacKenzie et al., 2007; Cochoy et al., 2010), and international relations, including critical security studies (see Austin et al., 2019; Braun et al., 2018; Srnicek et al., 2013). Interestingly, when actor-network theory’s theoretical and methodological repertoires travel from science and technology studies to the abovementioned disciplines, they require translation and as a result are subject to replication and differentiation, or adoption and adaption (Barry, 2013; Dányi, 2018; Walters, 2014). Actor-network theory’s key concepts like agency, materiality and symmetry (see Aradau, 2010; Braun et al., 2018; Srnicek et al., 2013) have been adopted and adapted in critical security studies’ methodological toolboxes and theoretical frameworks. But the adoption and adaption of actor-network theory is risky. It is not a methodology for recording certain phenomena; it is better understood as a sensitizing repertoire for scrutinizing practices. But Mol (2010: 261) warns: ‘With these [actor-network theory’s sensitizing terms], you may go out and walk new roads. But beware: as you walk nobody will hold your hand, there are no assurances.’ Similar warnings have also been made in discussions in this journal. William Walters (2014), for example, discusses Latour’s (2005) work on dingpolitik at length to render it suitable for critical security studies. He considers dingpolitik a methodological device that connects actor-network theory to mechanisms of making things public – or, as he refers to it, producing account. ‘Producing account’ is also what the present article is about, as I discuss later. The specific case in which Walters is interested is that of human rights violations committed by the Israel Defense Forces in Gaza. In particular, his focus concerns a report that seeks to produce account of alleged human rights violations by weaving together many different materialities and narratives, including:

thousands of 3mm tungsten cubes . . . circuit boards, witnesses, survivors and their testimonies, a sound (‘distinctive buzz’), blast craters and debris, Hamas fighters, Israeli forces, and the drone itself . . . the X-rays of the chests and limbs of the victims in which the tungsten cubes were embedded, bloodied tattered clothing, and photographs of dead children. (Walters, 2014: 108)

While I lack room to fully discuss Walters’ thoughtful analysis, I reflect on his article, albeit loosely, to articulate four different productive discussions between critical security studies and science and technology studies regarding actor-network theory. The first of these relates to how a concept is subject to translation while it travels and transforms from the one scholarly discipline to the other. Thus, and probably unsurprisingly, the realities of things and politics that are entangled in new assemblages, and other modes, in Walters’ adoption and adaption of dingpolitik within critical security studies are different from those of Latour’s (2005: 31) original conception. Related to this, as a second engagement, is the suggestion that objects and practices studied by scholars in critical security studies are largely defined by and through secrecy, inaccessibility and lack of transparency (Ingram, 2019; Walters, 2014). Actor-network theory’s toolbox thus needs to be adjusted to deal with such issues. The international community collaborated closely to bring prosecutions related to the many crimes committed during the Balkan wars of the 1990s by establishing and maintaining the ICTY. Accordingly, an ad hoc and new international realm focusing on violations of
humanitarian law became established, which eventually led to the establishment of the permanent International Criminal Court. The establishment of this permanent international body resonates with, as a third issue, the question of how the international gets constructed (Aradau et al., 2019; Salter, 2015). The fourth issue is that neither actor-network theory nor dingpolitik is one thing – they are not generic. This is also implied in the lesson that translation requires work and ‘treason’ (see Dányi, 2018). Actor-network theory and dingpolitik have many guises and may do various things in different contexts and practices. Accordingly, Walters argues that

a better understanding of these differences calls for some mid-level concepts. An important task for future material-oriented studies of security, then, is to fashion concepts that might capture variation in dingpolitik. (Walters, 2014: 114; see also Austin et al., 2019: 12; Ingram, 2019)

Walters’ suggestion to develop mid-level actor-network theory–like concepts aimed at articulating realities in the international sphere is exactly what I aim to do when I build on Haraway’s (1997) concept of the ‘ontologically dirty’ to develop the concept of ontologically dirty knots. Each of the three elements of the this concept – ‘ontological’, ‘dirty’ and ‘knot’ – articulates particular qualities of the rendered, validated and (by some) denied number of Srebrenica genocide victims. The ontological refers to situated practices, sites and situations involved in estimating the number of missed, recovered or identified persons, but each of these situated practices comes into being differently as they are constituted by different human and non-human actors (Haraway, 1997; Law, 2009; Mol, 2002). Digging in the soil and cleaning bodily remains in a forensic lab strongly resonate with the concept’s second element, that of dirt. While many regard dirt as disorder (see Douglas, 1966), and others have aligned it with territory (Nyers, 2012), I define the adjectives dirty and dirtier in combination with the adverb ontologically to signal that material semiotic things like numbers are never finished – they constantly evolve through being associated with ever more objects and subjects (Holtrop, 2018; Merry, 2016), and this is also the case in international legal processes. This point also resonates with Haraway’s (1997: 127) remarks about ontologically dirty objects and subjects that ‘are made up of provisionally articulated, temporally dispersed, and spatially networked actors and actants’. The noun knot highlights several issues in relation to the rendered numbers, as it implies entanglements, action and friction. Knots tie together different narratives and practices in complex arrangements: tying a knot is like producing account. But the fact that knots are constructed and produced does not mean that they are made up (Law and Urry, 2004). When these three elements are put together, the concept of ontologically dirty knots provides a means to realistically yet critically attend to the material semiotic realities that continuously interweave new things and politics, as well as to how those produced accounts are sometimes renounced. While the concept could be used to consider contemporary post-truth debates, such as those surrounding the shooting down of Malaysia Airlines Flight 17 or alleged meddling in the 2016 presidential elections in the USA, or discussions about, inter alia, vaccines, climate change or a New World Order, I articulate the concept of ontologically dirty knots through attending to the production, validation and denial of the number of victims in the Srebrenica genocide.

**Ontological: The technolegal rendering of numbers**

Following the massacre of approximately 8,000 Bosnian Muslim boys and men, and the VRS’s operation to hide victims’ bodies in secret mass graves, a challenge of epic proportions presented itself: How to determine how many persons went missing and were killed? And how to establish reliable records about the category of missing persons, whose bodies are hidden and who cannot speak for themselves? Here, I present three technoscientific and legal – or technolegal (Toom,
modes of counting Srebrenica victims: forensic anthropological analysis of bones exhumed from mass graves, demographic lists of persons reported missing, and forensic DNA matching of exhumed remains with reference material collected from family members (see Wagner, 2008). The analysis is based on reports submitted to the ICTY. These reports were selected for several reasons. They provide insight into the challenges and methodologies of counting, they were submitted as evidence to the ICTY, and they figure in revisionist accounts denying that a genocide was committed. I ask how the number of Srebrenica victims was rendered in the practices of forensic anthropology, demography and forensic genetics, respectively. From what and by whom were these numbers constituted? Then, in the final paragraphs of this section, I begin to articulate the ontologies by which these numbers were enacted.

**Forensic anthropology**

Forensic anthropology provides one mechanism for counting and accounting for the dead. Peruvian forensic anthropologist Jose Pablo Baraybar (1999) summarized and described the work of a group of forensic anthropologists, archaeologists and pathologists during exhumation missions at various gravesites in the Srebrenica area between 1996 and 1999. Baraybar’s report discussed some of the main concerns of forensic anthropology: integrity of remains; the so-called minimal number of individuals (MNI); the age, sex and stature of victims; inflicted trauma; and links between sites. The work of Baraybar and his team included the forensic investigation of 29 primary and secondary grave sites. Baraybar referred to the former as having been *robbed*. Environmental circumstances in the primary graves influenced the degree of preservation of bodies at the time of tampering:

> For example, primary sites dug into clay-rich soils that retain water, tend to preserve the bodies. On the other hand, graves dug into rocky, clay-poor and well-drained soil tend to facilitate decomposition and turn the bodies into skeletons. Therefore, at the time of ‘robbing’, in some cases the machine (e.g. mechanical excavator) broke through fleshed bodies while in others through skeletons. The latter determined the degree of fragmentation of the remains (number of body parts) and influenced the outcome of the anthropological determinations. (Baraybar, 1999: 40)

Fragmentation of bodies posed serious problems for efforts to count the number of individuals in the mass graves. What should be considered one individual if bodies are disarticulated, commingled and dispersed? In relation to this issue, Baraybar’s team calculated the MNI, which they defined as ‘the least number of individuals represented by the elements (e.g., bone fragments, jaws, limbs) recovered in an assemblage (e.g., the gravesite)’ (Baraybar, 1999: 40). Baraybar and his team assessed, inter alia, morphology and ‘skeletal features of the pelvis, skull and long bones’ using standards described in the scientific literature to determine sex and age, and compared bones to ‘population-specific standards for Bosnians’ to predict stature with a 95% confidence (Baraybar, 1999: 41–42).

To better understand the conduct of the forensic anthropologists, let us zoom in on one mass grave. The team excavated 50 left pelvic bones and, upon examination, it was determined that these were consistent with male persons whose age had been between 40 and 50 years at the time of death. In addition, recovered and examined long bones indicated the presence of three individuals aged between 13 and 17 years old, and 11 right shin bones likely originated from individuals between 18 and 24 years old. Taken together, these findings warranted the conclusion that the bones collected and examined from the mass grave represented an MNI of 64. In addition to the MNI, forensic soil and pollen analysis was used to determine which secondary gravesites were related to which primary graves, and hence where exhumed victims had been executed – for
example, finding grass in a grave located in a forest with a sand floor helped to establish links between secondary and primary graves (Baraybar, 1999: 43n7). The efforts of Baraybar and his team, along with other forensic anthropology missions between 1996 and 1999, resulted in a determination that recovered human remains represented a minimal number of 1,883 individuals. Subsequent excavations led to an updated MNI of 2,028 by Baraybar’s colleague Dean Manning (2001).

**Filed missing persons reports**

The traditional, rather bureaucratic (see M’charek and Black, 2019) mechanism for producing knowledge about victims of disasters and atrocities is that of adding disappeared persons to a list. After the fall of Srebrenica, two international organizations began filing missing persons reports: the International Committee of the Red Cross (ICRC) and Physicians for Human Rights (PHR). Both organizations produced their own lists according to their own standards and competence. Whereas the ICRC’s list was to provide families with ‘administrative’ certainty that their kin were dead, PHR’s list was aimed at the collection of information to enable future identification of recovered remains. Both lists recorded detailed personal information about the missing men and their surviving kin, including an individual’s first and last name, father’s name, sex, date and place of birth, and date and place of disappearance. Whereas the ICRC began adding names to lists of persons reported as missing in the general context of the Bosnian War shortly after the fall of Srebrenica, PHR only began collecting so-called antemortem data a year later, focusing (mainly) on individuals reported missing in connection with the Srebrenica massacre. To compare and merge the two different lists while ensuring their accuracy, the ICTY’s Office of the Prosecutor asked two Norwegian demographers, Helge Brunborg and Henrik Urdal, to ‘validate the number of missing persons in connection with the fall of the enclave of Srebrenica’ (Brunborg and Urdal, 2000: 1).

As the ICRC had listed all persons missing in the conflict, two parameters – the time and the location at which an individual was last seen alive – were essential for assessing the ICRC list. Many of the individuals who had been separated from husbands, fathers, sons and brothers had reported their kin as missing within days after the fall of Srebrenica. Consequently, as Brunborg and Urdal (2000: 3) note, they were ‘distressed and suffered from emotional and physical fatigue’, which led to several errors. The challenges involved in assessing the PHR list – compiled a year after the massacre – were somewhat different, yet one advantage was that family members were better prepared for the occasion (Brunborg and Urdal, 2000: 3). While Brunborg and Urdal (2000: 4) acknowledged that both lists had particular strengths and weaknesses, they also stated that both lists ‘corroborate each other and provide more reliable information than either used separately’. In cases where it was determined that the vital information given for one person was identical with that of another, and that different sets of data referred to one and the same person, then those ‘duplicates’ were migrated to the ‘consolidated’ list of missing persons. To minimize the risk that duplicates would be overlooked because of minor entry mistakes, and thus to ensure that two similar but not identical records related to the same missing person were not filed as two different persons, Brunborg and Urdal assessed all records manually, visually and individually. Furthermore, they compared all entries with other available lists containing information about individuals, such as the 1991 census and lists of voters for the 1997 and 1998 elections maintained by the Organization for Security and Co-operation in Europe. While the census list was instrumental in finding further information, such as ID numbers, place and time of birth, and correct spelling of names, the voters’ lists were used to cross-check the missing persons list to confirm that a missing person had really disappeared and did not vote in elections. Thus, rendering lists involves a constant attention to what names should be including in or excluded from a list. When the ICTY researchers submitted
their findings in 1999, they concluded that 7,475 individuals had been reported as missing in relation to the Srebrenica massacre (Brunborg and Urdal, 2000: 7).

**Genetic identification**

A third technolegal practice used to produce numbers of Srebrenica victims is that of genetic matching of recovered bones and filed missing persons reports. Most of this work has been carried out by the International Commission on Missing Persons (ICMP), which was established in 1996 as part of the implementation of the Dayton Peace Agreement. Statistical matching of DNA profiles obtained from (postmortem) recovered bones and (antemortem) reference samples from family members is a complex procedure (partly) described in a standard operating procedure maintained by the ICMP (2006). The standard operating procedure summarizes some essential instructions regarding software, the many abbreviations deployed, the use of reference numbers, and pedigrees providing information about biological relatedness. It also provides examples regarding how to determine the probabilities of possible kin-relationships. The essential question in DNA matching is that of determining the statistical strength of a match between DNA profiles obtained from recovered bones and DNA profiles originating from a living family member. To determine a match’s strength, the ICMP (2006: 2) uses a reference database of 424 biologically unrelated individuals from Bosnia and Herzegovina that provides statistical information about allele frequencies. But identification is also dependent on the availability of reference material, and when identification thresholds are not met, ‘additional relatives must be included or additional testing must be carried out’ (ICMP, 2006: 7). In its Srebrenica infographic of 28 June 2019, the ICMP reported the following numbers about Srebrenica in relation to DNA analysis:

The estimated number of persons missing as a result of the fall of the Srebrenica and Žepa UN Safe Areas in July 1995 is ~8,000 . . . the number of persons identified using DNA is 6,949. (ICMP, 2019)

There are some interesting similarities between the three technologal practices presented above: each has a tendency to use conservative models to avoid overestimating the number of victims; they all generate knowledge commissioned or used by the ICTY; and each of the practices is related to the atrocities committed in and around Srebrenica. Taken together, the practices underscore the complexity of operations to (ac)count (for) the missing along with the political context in which they take place (Jugo and Wagner, 2017; Toom, 2018). Despite such similarities, however, there are also important differences. Striking, of course, are the differences between the various numbers produced: the first practice produces an MNI of 1,883/2,028, the second arrives at a figure of 7,475 filed missing persons reports, and the third approach produces 6,949 genetically identified victims through the practice of matching bones with reference DNA from surviving relatives. But these differences should not come as a surprise, as the figures were rendered at different moments, through different mechanisms, and therefore provide different approximations of the number of victims and missing persons after the fall of Srebrenica.

The knowledge embodied in the established technolegal numbers provides a way of making the world and worldly practices accountable through the articulation of ‘equipment lists’ or ‘provenance’ (see Kenney, 2015; Mol, 2016). The world of forensic anthropology, for example, is composed of heterogeneous elements like clay-rich grounds, water levels, spades, bones, and population-specific standards for Bosnians regarding sex and age. Also included is pollen analysis, which made it possible to determine where bodies were buried initially before being removed. Hence, in this practice, botany is an essential ingredient in tracing the choreography of dead bodies. This is in contrast to the ontologies of demography and forensic genetics. Demography and
listing became associated with making categories — for example, when the lists were reviewed and selected on date and place last seen alive (see De Goede and Sullivan, 2016; Holtrop, 2018; Merry, 2016). In addition, emotional and physical fatigue, duplicates, entry mistakes, and the manual, visual and individual assessment of records all inhabited the worlds of the list. Because voters’ lists were important for guaranteeing accuracy, the produced number of filed missing persons reports related to Srebrenica was also dependent on democratic practices. And similar articulations can be inferred from the description of forensic genetic practices. The number of DNA matches not only is dependent on a whole laboratory configuration that includes procedures, software, a reference database and next of kin, but also is associated with the Dayton Peace Agreement, and thus geopolitics is also inscribed into the practices of forensic identification after the Bosnian War. What is gained from an actor-network theory analysis is that quite unexpected phenomena and practices come to matter (see Abrahamsson and Dányi, 2018; Aradau, 2010; Toom, 2016). Traditional dualist notions like thing and person, matter and meaning, or micro and macro, turn out to fit within one analytical methodology, namely, actor-network theory. Now, having analysed these technolegally produced numbers in a symmetrical and descriptive mode, I follow the numbers to the ICTY to analyse how evidence became proof.

Dirty: Numbers in the ICTY’s trials

The technolegally produced numbers discussed above were rendered as evidence against suspects held responsible for the genocide in Srebrenica. While they were instrumental in producing account, they were not finished, as demonstrated in this section. By briefly drawing on ICTY cases in which these technolegally produced numbers figured prominently, I show how numbers become dirty and (ever more) dirtier. I do this not by attending to the defence’s dirty tricks aimed at delaying criminal trials in, for example, the case of Radovan Karadžić (see Haimes and Toom, 2014). I’m also not describing how accounts about what happened are considered to be more credible and believable in particular legal systems (Toom, 2010). Instead, I narrate how evidence moves, changes and assembles credibility while travelling from Bosnian soil and clay to the ICTY in The Hague (see Aradau and Huysmans, 2019). I show that, during that journey, evidence becomes related to new regimes, logics and modes of reasoning, as well as to other evidence. It is in this sense that I argue that the evidence rendered into proof beyond reasonable doubt becomes dirty and dirtier because it becomes situated in a more diverse, heterogeneous and complex network. I do this by presenting three examples of numbers that are validated through counter-expertise, adjustment and juxtaposition.

Counter-expertise

At the time of the Srebrenica genocide, Major General Radislav Krstic was deputy commander of the VRS’s Drina Corps. Trials at the ICTY established beyond reasonable doubt that the Drina Corps was involved in the execution of prisoners at the Branjevo Farm and Pilica Cultural Dom after the fall of Srebrenica. Accordingly, the ICTY’s Trial Chamber concluded that Krstic bore responsibility for organizing the execution of the Srebrenica men by the Drina Corps. The 2001 judgement against Krstic was a milestone in the ICTY’s history because this was the first time that an individual had been convicted for the Srebrenica genocide. While the MNI of 1,883/2,028 and the 7,475 missing persons reports filed proved to be significant in the proceedings, they were challenged by experts mobilized by the defence.

The MNI of 1,883/2,028, which had been established by forensic anthropologists, was reviewed by a forensic expert for the defence. This expert, Dr Zoran Stankovic, reviewed the various reports that had been submitted as evidence in the trial. Stankovic deployed various strategies to challenge
the MNI of 1,883/2,028. First, he argued that some of the victims exhumed from mass graves may have been belligerents and thus may have been legitimately killed during combat. To substantiate that claim, he pointed out that at some sites few or no blindfolds and ligatures had been recovered, which in his view rendered it less likely that the remains found there were of individuals who had been executed. That the bodies of persons summarily executed and those of individuals who had been killed legitimately in combat had been mixed together, he explained, was related to the fact that some of the mass graves were located at sites where intense fighting had taken place in July 1995 (ICTY, 2001: 24). A second strategy was to discredit the methods deployed by Baraybar and others. In his report, Stankovic questioned the answers provided by Baraybar during cross-examination and provided the example of how Baraybar had not explained how he had arrived at the parameters used to determine the age of exhumed victims. More specifically, Stankovic (2001: 10) mentioned the inconsistent formation of age-groups in clusters of 8–12 years, 13–17 years, 15–24 years, 25+, 31–65 years and 31–71 years. However, although the Trial Chamber, in its verdict, could not rule out the ‘possibility that a percentage of the bodies in the gravesites examined may have been killed in combat’ (ICTY, 2001: 24), it did conclude that the forensic evidence presented by the prosecutor was consistent with mass executions and not soldiers killed in combat. The judges thus found that it had been established beyond reasonable doubt that ‘a minimum of 2,028 separate bodies’ (ICTY, 2001: 23) had been excavated from mass graves. Accordingly, the MNI of 2,028 that had been submitted as evidence was rendered proven and thus materialized legally. A logic that can be deduced from the above is that a conservative heuristic articulating the minimum is important when evidence is rendered as proven beyond reasonable doubt.

Adjusting numbers

While the example from the Krstic judgement discussed above demonstrates the importance of a conservative heuristic of evidentiary mechanisms to withstand cross-examination, other logics may also be important when evidence becomes validated as proven beyond reasonable doubt. This becomes clear when the question of the number of genetically identified victims in the Srebrenica genocide is considered in more detail. In this context, the case against Vujadin Popovic, a lieutenant colonel in the Drina Corps in 1995, was of great concern, as the proceedings implied a test case for DNA evidence in ICTY procedures. Consequently, DNA technology was extensively scrutinized. At stake was not only the question of whether DNA identifications would be admitted as a source of reliable and accurate evidence, but also the question of how many Srebrenica victims had been identified, and thus how many had been killed by the VRS. For reasons of space, the trial episodes related to DNA evidence are discussed only briefly here. The closing arguments in the Popovic trial were held in September 2009. An ICMP DNA expert testified that the ICMP had genetically identified 6,006 persons in relation to the Srebrenica genocide (ICTY, 2009: 5). This figure was broken down into 5,358 bodies recovered from mass graves and subsequently identified and 648 identifications from surface remains. While these numbers seem straightforward, they required attention. For example, it could not be ruled out that some of those identified as victims ‘may have died as a result of land mines, suicide or legitimate combat operations . . . close to Srebrenica Related Gravesites’, and ‘such cases were most likely to be found among the surface remains’ (ICTY, 2010: 248). Identifications from surface remains were therefore not included in the number of identified Srebrenica genocide victims (ICTY, 2010: 265). In addition, the 5,358 identified victims recovered from mass graves also required further specification, as 10 individuals found in mass graves near Srebrenica were not related to the genocide, and 12 bodies identified as being those of Bosnian Serb soldiers were returned to the VRS (ICTY, 2010: 265). On the basis of the data available to the Trial Chamber in September 2009, it thus concluded that it was ‘satisfied
beyond reasonable doubt that at least 5,336 identified individuals were killed in the executions following the fall of Srebrenica’. (ICTY, 2010: 265)

**Juxtaposing various technolegal numbers**

Extensively discussed in this article are the technolegal numbers that were produced to provide insight into how many persons were killed during the Srebrenica genocide of 1995. As we have seen, these numbers were produced through different mechanisms, and represent and connect different sets of objects in their networks. Different as they are, the question is how they hang together. Obviously, they are all related to the massacres under the responsibility of the VRS after it overran Srebrenica. But the different technolegally produced and validated numbers also create coherency. This claim is evidenced in the Krstic judgement, when the Trial Chamber refers to testimony given by Helge Brunborg, the Norwegian demographer whose work was discussed earlier. Brunborg highlights the fact that the overwhelming majority of the victims were male. The judges then state that forensic anthropological examination to determine the sex of the bodies that were found was successful in 1,843 cases, and only one of the sets of recovered remains belonged to a woman. A similar line of argumentation was deployed regarding the age distribution in cases of filed missing persons reports and the results of age determination following forensic anthropological analysis of recovered remains (ICTY, 2001: 23). In subsequent years, the Office of the Prosecutor went to great lengths to demonstrate that all of the different numbers and objects on which it had drawn were related. There were, for example, several evidentiary items submitted in the Popovic case that demonstrated coherence between DNA-identified Srebrenica victims and details of vital data recorded on the missing persons lists (see, for example, Tabeau and Hetland, 2008). More specifically, it was stated that results obtained from the Office of the Prosecutor’s list and the identified victims were highly consistent, and that several similarities between age and sex distributions on the Office of the Prosecutor’s list and the identified victims have been recorded (Tabeau and Hetland, 2008: 8–9). The judges referred to the report by Tabeau and Hetland many times in their decision (ICTY, 2010), which, I contend, provides them sufficient leverage to determine the facts that contribute to proving beyond reasonable doubt that a genocide had been committed. Juxtapositions of different evidential modalities (i.e. identified victims, filed missing persons reports and exhumed bodily remains) were continually made to facilitate processes of legal evaluation. The use of the report submitted by Tabeau and Hetland (2008) demonstrates how these different modalities hang together and help to establish beyond reasonable doubt how many persons were killed in the Srebrenica genocide.

To summarize, then, in this section I followed the technolegally established numbers to the ICTY’s trials, where they were used as evidence to prove that a genocide had taken place. I focused on the legal validation of those numbers by attending to counter-evidence, the adjustment of numbers and their juxtaposition to trace how the various numbers gained credibility (Aradau and Huysmans, 2019). In each of these three validation processes (i.e. counter-expertise, adjusting numbers, juxtaposition), numbers were resituated in new networks and practices, with different logics, regimes and reasoning (Holtrop, 2018). The three examples demonstrate that numbers are not only modes of bureaucratic and technolegal accounting, but also ways to care for bodies and re-member those who were killed in a genocidal crime (see M’charek and Black, 2019). The analysis showed that the produced numbers were not yet ready, not yet fixed. They required a constant tinkering. Regarding the established MNI, the forensic anthropologists had anticipated that their findings would be used in criminal proceedings. Hence, the numbers were produced in a way that would be able to withstand the ICTY’s adversarial due process, including cross-examination by the defence. And, as the example of the number of genetically identified Srebrenica victims
demonstrated, numbers in flux are sometimes more accurate and believable than stable numbers. Finally, in order for evidence to become proof, it is sometimes necessary that other modalities of evidence support a particular claim, as was demonstrated when various numbers were juxtaposed. Even though the numbers differ, through their juxtaposition they provide additional support for each other. In short, a number is – at least in this article – never finished (Merry, 2016; Nelson, 2015). Thus, my descriptive, symmetrical analysis demonstrates how numbers acquire new associations with a range of different regimes, logics, reasoning styles and other evidence. They become ontologically more diverse and heterogeneous – ontologically dirty and dirtier. At the same time, they help to enact the international sphere by introducing international criminal law and procedures, which, I contend, is another mode of making a realm dirtier (Salter, 2015). Interestingly, my descriptive mode of analysis becomes rather uncomfortable when attending to a practice that denies the established numbers of individuals killed in the genocide. Given the discomfort, the normative assignment in this article thus becomes how to deal symmetrically and methodologically with something as atrocious as a genocide.

**Knots: The denial of numbers**

The Bosnian War ended with the so-called Dayton Agreement in November 1995. As part of that agreement, the involved parties – the Republic of Bosnia and Herzegovina, the Republic of Croatia and the Federal Republic of Yugoslavia – accepted that it was necessary to bring an end to the conflict in the former Yugoslavia. Among other things, Bosnia and Herzegovina was split into two entities, with the Federation of Bosnia and Herzegovina, with a predominantly Muslim population, on the one side and Republika Srpska, with mainly Serbs, on the other.\(^4\) This was a geopolitical and legal solution to reconcile a broken country. However, while there are currently no warring parties in Bosnia and Herzegovina, real peace or full reconciliation has not (yet) been achieved. This failure is exemplified by the outright denial by some politicians and academics of the Srebrenica genocide (see Nettelfield and Wagner, 2014; Rondic, 2015; Stanton, 1998). While I strongly disagree with the underlying politics of denying the Srebrenica genocide, I will now discuss the strategies that are used in efforts to unmake, untie and unravel produced and validated numbers related to the Srebrenica genocide and the accounts they substantiate. I am thus interested not only in the production of numbers through the weaving and knitting together of materialities, relations, subjects, objects and meanings, but also in how such numbers are untied and disentangled.

**Official policies of denial and contestation**

During interviews in Bosnia and Herzegovina with officials from the ICTY, the ICMP and various NGOs in the summer of 2017, I was told that different communities live in ‘parallel universes’ or in ‘different realities’ regarding the facts of the Srebrenica genocide. And the inter-entity boundary line demarcates, by and large, those realities and universes. While the ICTY has produced verdicts that declare it beyond reasonable doubt that a genocide was committed in the Srebrenica area in the summer of July 1995 and that, among others, Radislav Krstic, Vujadin Popovic, Radovan Karadzic and Ratko Mladic were responsible for the execution or planning of that crime, Republika Srpska endorses an official policy of denial. Several scholars demonstrated, for example, that the government of Republika Srpska substantially sponsored the ‘industry of genocide denial’ from 2008 to 2012 (Nettelfield and Wagner, 2014: 281; Rondic, 2015: 45). Furthermore, Bosnian Serb political leader Milorad Dodik referred in 2015 to the Srebrenica genocide as ‘the greatest deception of the 20th century’,\(^5\) and in 2017 he banned any teaching in Republika Srpska about Srebrenica and the role of the VRS in those crimes, declaring: ‘This is not correct and this will not be taught here.’\(^6\) To
scholars and practitioners involved in genocide studies and transitional justice processes, this comes as no surprise as denial is a well-known post-genocidal mechanism (Stanton, 1998).

**Efforts to destabilize numbers**

A group of mainly British and American scholars have been attempting to destabilize the technologically produced and legally validated records regarding the number of Srebrenica victims. A key figure in this debate is the late American philosopher Edward S. Herman. Writing about the politics of genocide, Herman and his co-author David Peterson contend that the evidence for the execution of 8,000 Srebrenica men and boys is thin since, in their analysis, it is difficult to separate those who were killed in battle from those who were executed because witness evidence is contestable and there has been a global conspiracy to demonize Serbs (Herman and Peterson, 2010: 48).

Through their suggestion that, as we saw in the previous section, soldiers were included in the victim count, and by contending that evidence was corrupted and biased, the authors seek to discredit evidence about the Srebrenica genocide. The art of casting doubt is furthered in a volume entitled *The Srebrenica Massacre: Evidence, Context, Politics*, which was edited by Herman (2011a). In one chapter, Herman’s questioning and analysis regarding the number of Srebrenica victims provides insight into the mechanisms deployed to destabilize technologically produced and legally validated numbers:

An estimated ‘43 known Srebrenica related mass graves’ had yielded some 2,600 bodies between 1996 and 2001. The 448 blindfolds and 423 ligatures reportedly recovered along with these bodies by forensic experts of the ICTY, genuine evidence of likely executions, represented a rate of roughly one for every six bodies, but how many of the rest were executed or killed in fighting has never been established. (Herman, 2011b: 20–21)

Another chapter puts forward alternative hypotheses about the number of men and boys executed at Srebrenica. Based on a reading of documents, former BBC journalist Jonathan Rooper (2011: 141) concludes that the claim that 8,000 victims were killed in a genocide constitutes a ‘travesty of justice’. To substantiate this claim, he argues that the ICMP’s forensic mechanisms to genetically identify victims were based on a ‘defective methodology’ (Rooper, 2011: 137) and that the ICMP never provided the ICTY with ‘any of the DNA evidence allegedly assembled by the ICMP’ (Rooper, 2011: 138). Despite the belief on the part of contributors to the edited volume that the Srebrenica massacre does not constitute a genocide, they are careful to provide alternative Srebrenica victim counts. Nevertheless, contributors to the volume refer to the maximum number of truly executed victims as being closer to 4,000 and closer to 800. The claims made, and questions raised, by the volume’s contributors seem genuine and justifiable. On the one hand, they combine legitimate questions about the institutional bias of the ICTY and about the ICMP’s processes and practices, definitions, and categories of who counts as a killed victim or fallen soldier with, on the other hand, unverifiable narratives about the persecution of Bosnian Serbs and alternative readings of the way in which numbers of victims were produced (see Nettelfield and Wagner, 2014).

By deploying the scholarly apparatus of academic reasoning and extensive referencing, analyses by Herman and his allies resonate with modern social science, thereby adding a whiff of scientificity to their readings of the Bosnian War and the ‘events’ of July 1995 and thereafter (see Barkun, 2003; Harambam and Aupers, 2014). The main outcome of the work of Herman and others has thus not been the putting forward of alternative numbers per se, but the juxtaposition of, on the one hand, technologically produced and legally validated records regarding the number of Srebrenica victims and, on the other, alternative readings and interpretations of numbers, narratives
and histories. The juxtaposed narratives demonstrate, first, that the technologically and validated
numbers are carefully tied in a knot wherein knowledge, materialities, interpretations and narratives are bundled, and, second, that such knots can be reinterpreted, disentangled and recomposed in ways that grant a similar status to alternative numbers for those who, for political reasons, prefer other histories. Official and validated accounts of what happened thus become just one version in a broad panoply of possible truths.

**Ontologically dirty knots**

This article resonates with some of the exceptional work already done in critical security studies and international relations (e.g. Amicelle et al., 2015; Aradau, 2010; Austin et al., 2019; De Goede et al., 2016). It reveals how actor-network theory provides opportunities to assemble unexpected realities of things and politics in practices where secrecy, inaccessibility and lack of transparency are the rule and not the exception. The analysis in this article regarding the ICTY also resonates with current work in critical security studies that asks how the international gets constructed. And, lastly, I have used this article to argue that *actor-network theory is not one thing*, but that it has many guises, that it may do many things, and that in order for it to do good, one may have to commit ‘treason’ (see Dányi, 2018). In the context of this article, I built on Donna Haraway’s notion of the ‘ontologically dirty’ to introduce the notion of ontologically dirty knots as a useful methodological concept for those interested in material-oriented analyses of issues in critical security studies – one that offers guidance on how to produce account that is symmetrical and realistic yet critical (Walters, 2014). This was done through attending to the production of validated technolegal knowledge in a politicized and contested context.

*Ontology* articulates the heterogeneity of objects that results from the *mixing of various realities* that contribute to the production of, in this article, evidence regarding the missing, recovered and identified victims of the Srebrenica genocide. Here, the enacted realities include a diverse set of actors and objects, including clay-rich grounds, bones, botany, emotional and physical fatigue, administrative mistakes, democracy, procedures, reference databases and geopolitics. Each of these objects and their realities were tied together in the technolegal numbers that were established in the wake of the events at Srebrenica. Through the notion of *dirty*, the concept of ontologically dirty knots also demonstrates objects’ *potential for continuous development* as they travel from the one to the other realm. We observed how technolegal numbers were produced in ways suitable for the due process and adversarial logic of the ICTY trials, that numbers in flux are sometimes more believable than stable numbers, and that different numbers may provide support for each other. Numbers became situated in new practices and logics, established new associations, and consequently became dirty and dirtier. In the third empirical section, I attended to attempts by revisionists to rewrite history in ways that some scholars and politicians might prefer. I suggested that a *knot signals entanglements, action and friction*, and as such provides opportunities to address denial. I showed that academic reasoning and extensive referencing are not only mechanisms for generating legitimate knowledge but may also be utilized to juxtapose legitimate and validated accounts with alternative truths that *seem* to be legitimate and truthful.

My explanation of ontological dirty knots demonstrates how modern dichotomies –matter and meaning, micro and macro, abstract and real, materiality and sociality, or fact and fiction – can be reconciled if attended to in a symmetrical mode. But actor-network theory–style symmetry seems to come with two costs. First, it does not easily allow one to take sides, unless the analysis converts from a descriptive and analytical one to a normative one at some point in the process – a topic that I discussed in the context of critiques of actor-network theory. Second, according to some, symmetry has been adopted by a whole bunch of ‘conspiracy theorists’ (e.g. in contexts that range from
discussions of the 9/11 attacks and global warming to anti-vaccine discourse) to tilt the balance of power in their favour. In other words, some scholars within science and technology studies argue that symmetry has given rise to post-truth (see Fuller, 2016; Latour, 2004; Sismondo, 2017). The discussion about symmetry has also found its way into the pages of this journal (Aradau and Huysmans, 2019; Austin et al., 2019). Like Aradau and Huysmans (2019), who suggest that we avoid taking sides in epistemic controversies, I have deployed a strategy of symmetry in this article by analysing each of the numbers put forward in the debate on its own terms. My aim has thus been to symmetrically present what more or less really happened and what allegedly happened according to some. Through zooming in on the methodologies behind knowledge production, readers are asked to form their own opinions about which version regarding the Srebrenica genocide is the more believable: the accounts provided by some academics and Bosnian Serb politicians, on the one hand, or those of the ICTY, on the other. Actor-network theory–style symmetry transfers the decision about which truth is better from the analyst to the reader. It interferes in the subject-positions of analyst and reader, and (re)shuffles subject and object. Instead of simply reading and maybe adding a few comments to the text, you are being asked to work, to form an opinion, to question the various positions – you become interpellated by the narrative and the events just as I was interpellated while reading horrendous testimonies as I prepared this article (see Haraway, 1997: 50; Law, 2002). I hope that you find the produced accounts of the ICTY more compelling and believable than those of Dodik or Herman. But I also hope that this article provided you with a perspective on an event that should never had happened – and that should never be forgotten. In that respect, another kind of politics this article does is sharing constructed stories that are nevertheless real to ensure that the Srebrenica genocide will never be forgotten – and that some of the horrible and validated stories about the crimes committed against Bosnian Muslims will continue to circulate, also on the pages of this journal. Let this story affect you, as it did a reader of a previous draft, who wrote: ‘Damn. I mean, I knew a little about the massacre before, but damn.’

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Notes

1. For further details, see, for example, Wagner (2008), ICTY (2016).
2. For further details, see http://www.icmp.int/about-us/history/ (accessed 3 August 2019).
3. For an extensive discussion of DNA evidence in the Karadzic case, see Haines and Toom (2014).
4. To avoid overcomplicating the discussion, I do not discuss Bosnian Croats living in Bosnia and Herzegovina.
5. Dodik is a former president of Republika Srpska (2010–18) and, at the time of writing in 2019, the Serb member of the tripartite presidency of Bosnia and Herzegovina. For the quote regarding the genocide as deception, see https://www.reuters.com/article/us-bosnia-serbia-arrest-idUSKBN0P51OL20150625 (accessed 3 August 2019).

6. Apart from challenging claims that the massacre that occurred in Srebrenica constitutes a genocide, he also referred to the siege of Sarajevo that lasted for almost four years and took the lives of thousands of civilians; see http://www.reuters.com/article/us-bosnia-serbs-history-idUSKBN18X1SL (accessed 3 August 2019). For another example, see http://www.balkaninsights.com/en/article/srebrenica-s-serb-mayor-repeats-denial-of-genocide-04-13-2017 (accessed 3 August 2019).

7. Herman became famous for his work (with Noam Chomsky) on the role of mass media and how they are instrumental in securing the interests of states and corporate capital.

8. See Mandel (2011: 211), and Corwin (2011: 8), respectively.

9. Personal communication, 24 November 2016.

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