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LOW-INTENSITY CYBER OPERATIONS AND STATE SOVEREIGNTY IN CYBERSPACE
Kevin Jon Heller

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Editors’ preface

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Copenhagen, June 2022

Kristian Søby Kristensen, Kevin Jon Heller
and Astrid Kjeldgaard-Pedersen.
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Abstract and Recommendations

The final report of the United Nations Open-Ended Working Group on Security of and in the Use of Information and Communication Technologies (OEWG), adopted by consensus in March 2021, affirms that international law applies to cyberspace and calls upon states ‘to avoid and refrain from taking any measures not in accordance with international law’. Significant differences nevertheless remain concerning how international law applies to cyberspace, as states have been unable to agree on what kinds of cyber operations international law prohibits.

States are particularly divided over the international wrongfulness of cyber operations that penetrate a computer system located on the territory of another state but do not rise to the level of a use of force or prohibited intervention –often referred to as ‘low-intensity’ cyber operations. Low-intensity cyber operations, which include most acts of extraterritorial law-enforcement (including counterterrorism) and espionage, are the most common form of cyber operation and are likely to become even more common over time given their relatively low cost and significant utility for states.

This report compares and assesses three very different positions concerning whether low-intensity cyber operations violate the sovereignty of the territorial state. The first position, endorsed by the UK and until recently by the US, is that low-intensity cyber operations are never wrongful because sovereignty is a principle of international law, not a primary rule that can be independently violated. The second position, defended most vigorously by France, is that low-intensity cyber operations are always wrongful because sovereignty is a primary rule of international law that is violated by any non-consensual penetration of a computer system located on the territory of another state – what has been called the ‘pure sovereigntist’ approach. And the third position, adopted by states such as the Netherlands and the Czech Republic, is that although sovereignty is a primary rule of international law, only low-intensity cyber operations
that cause some kind of physical damage to the territorial state or render its cyberinfrastructure inoperable are wrongful – what has been referred to as the ‘relative sovereigntist’ approach.

The report concludes that Denmark should adopt either pure sovereignty or relative sovereignty, because the ‘sovereignty as a principle’ approach is incompatible with international law, has been overwhelmingly rejected by the international community, and has little to offer a small state that is more concerned with defending itself against cyberattacks than using them for offensive purposes. Pure sovereignty, as the report demonstrates, is more consistent with the traditional understanding of how sovereignty functions in the physical world and would better protect Denmark against damaging cyber espionage than relative sovereignty. But the report acknowledges that relative sovereignty has been endorsed by Denmark’s most important allies, including the US and Norway, making its adoption attractive from a diplomatic perspective.

The report recommends that, regardless of which position it adopts, Denmark should issue a public statement concerning its understanding of how international law applies in cyberspace. If it endorses pure sovereignty, saying so publicly would be sufficient. But if it endorses relative sovereignty, Denmark could make a significant contribution to the development of the relative-sovereigntist position by specifying, in a manner most previous public statements have not, precisely what kinds of low-intensity cyber operations Denmark believes violate its sovereignty. The report also recommends that Denmark should participate actively in the new OEWG, which will report its findings to the General Assembly in 2022. Participation in the OEWG is necessary to ensure that Denmark’s sovereign interests are adequately represented while the international law of cyberspace continues to develop.
Den endelige rapport fra FN’s arbejdsgruppe om sikkerhed i og ved brugen af informations- og kommunikationsteknologier (OEWG), som blev enstemmigt vedtaget i marts 2021, bekræfter, at folkeretten gælder i cyberspace, og opfordrer stater til at "undgå og undlade at træffe foranstaltninger, som ikke er i overensstemmelse med folkeretten." Ikke desto mindre er der fortsat betydelige uenigheder om, hvordan folkeretten finder anvendelse i cyberspace, eftersom stater ikke har været i stand til at blive enige om, hvilke typer af cyberoperationer folkeretten forbryder.

Stater er især splittede i spørgsmålet om, hvorvidt cyberoperationer, som trænger ind i computersystemer lokaliseret på en anden stats territorium, men som ikke kvalificerer som magtanvendelse eller ulovlig intervention i juridisk forstand – såkaldte lavintensive cyberoperationer – er i uoverensstemmelse med folkeretten. Lavintensive cyberoperationer, som inkluderer de fleste handlinger, stater foretager i forbindelse med retshåndhævelse uden for eget territorium (herunder terrorbekæmpelse) og spionage, er den mest almindelige type af cyberoperation, og de vil formentlig blive endnu mere udbredte med tiden pga. deres relativt lave omkostninger og høje nytteværdi for stater.

Denne rapport sammenligner og vurderer tre meget forskellige positioner med hensyn til, hvorvidt lavintensive cyberoperationer overtræder territorialstatens suverænitet. Den første position, som indtages af Storbritannien og indtil for nylig af USA, er, at lavintensive cyberoperationer aldrig er uretmæssige, eftersom suverænitetsbegrebet blot er et princip i international ret og ikke en primær regel, der selvstændigt kan blive overtrådt. Den anden position, som især Frankrig er fortaler for, er, at lavintensive cyberoperationer altid er uretmæssige, fordi suverænitetstrinippet udgør en bindende folkeretlig regel, som overtrædes ved enhver indtrængning uden samtykke i et computersystem lokaliseret på en anden stats territorium. Denne position kaldes den rene suverænitetstilgang. Den tredje position, som indtages af bl.a. Holland og Tjekkiet, er, at selvom suverænitetstrinippet er en bindende folkeretlig regel, er det kun den delmængde af lavintensive cyberoperationer, som forårsager en
form for fysisk skade på territorialstaten eller efterlader dens cyberinfrastruktur ude af funktion, der er uretmæssige. Denne position kaldes også den relative suverænitetstilgang.

Rapporten konkluderer, at Danmark bør tilslutte sig enten den rene eller den relative tilgang til suverænitet, fordi den første position – "suverænitet som princip"-tilgangen – er uførenelig med folkeretten, i overvældende grad er blevet afvist af det internationale samfund og grundlæggende ikke er attraktiv for en småstat som Danmark, der må forventes at være mere optaget af at forsøge sig mod cyberangreb end at anvende cybermidler til offensive formål. Rapporten viser, at den rene suverænitetstilgang er mere i overensstemmelse med den traditionelle forståelse af, hvordan suverænitet fungerer i den fysiske verden og bedre vil kunne beskytte Danmark mod ødelæggende cyberspionage end den relative tilgang. På den anden side anerkender rapporten, at Danmarks vigtigste allierede, herunder USA og Norge, har tilsluttet sig den relative tilgang, hvilket gør denne attraktiv ud fra et diplomatisk perspektiv.

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Introduction

Since 2016, more than two dozen states and NATO have issued public statements concerning how international law applies in cyberspace. In general, the statements focus on the rules applicable to two types of cyber operations: those that violate the prohibition of the use of force in Art. 2(4) of the UN Charter and possibly qualify as an armed attack that triggers the right of self-defence; and those that violate the principle of non-intervention in customary international law because they are intended to coerce a state regarding matters that fall within its domaine réservé (e.g., the conduct of elections).

These types of cyber operations, however, are exceedingly rare. To date, no state has ever publicly described a cyber operation as a use of force, much less an armed attack; not even the Stuxnet virus that targeted Iran’s nuclear programme in 2010, which the International Group of Experts (IGE) responsible for Tallinn Manual 2.0 unanimously agreed violated Art. 2(4).1 Similarly, no state has ever explicitly invoked the principle of non-intervention in the cyber context, although the US strongly implied that Russian interference in the 2016 presidential elec-

1. Introduction

tion violated the principle,2 as did Georgia in response to Russian attacks on key Georgian government agencies in 2019.3

A third type of cyber operation, by contrast, has become increasingly common: those that involve penetrating a computer system located on the territory of another state without its consent but do not qualify as a prohibited intervention or use of force4 – what are often referred to as ‘low-intensity’ cyber operations.5 Such operations normally involve either law enforcement or espionage. Extraterritorial law-enforcement is nearly always low intensity because such cyber operations generally aim at obtaining digital evidence or removing information (e.g., terrorist propaganda videos) from computer systems located abroad, not at harming the territorial state or coercing its government with regard to its domaine réservé.6 And cyber espionage is almost by definition low intensity, because it involves the clandestine ‘use of cyber capabilities to surveil, monitor, capture, or exfiltrate electronically transmitted or stored communications, data, or other information’.7

According to the Council on Foreign Relations (CFR), 34 states have engaged in low-intensity cyber operations since 2005, and the frequency of such cyber operations has increased over time (from nine operations in 2010 to 34 in 2015 and 120 in 2020).8 This trend is likely to contin-

7. Ibid., 168.
ue, as low-intensity cyber operations are ‘an inexpensive and potentially anonymous way of degrading adversaries during conflict or peacetime’.9

In contrast to cyber operations that potentially implicate the prohibition of the use of force or the principle of non-intervention, where there is general agreement concerning the applicable legal framework,10 states are deeply divided over when low-intensity cyber operations violate international law – a question that depends on whether state sovereignty is a primary rule of international law in cyberspace and, if so, how it applies. More specifically, states have adopted three different and generally irreconcilable positions on that question. The first position, endorsed by the UK and until recently the US, is that low-intensity cyber operations are never wrongful, because sovereignty is a principle of international law, not a primary rule that can be independently violated. The second position, defended most vigorously by France, is that low-intensity cyber operations are always wrongful, because sovereignty is a primary rule of international law that is violated by any non-consensual penetration of a computer system located on the territory of another state – what has been called the ‘pure sovereigntist’ approach.11 And the third position, adopted by states such as the Netherlands and the Czech Republic, is that although sovereignty is a primary rule of international law, only low-intensity cyber operations that cause physical damage to the territorial state or render its cyberinfrastructure inoperable are wrongful – what has been called the ‘relative sovereigntist’ approach.12

The lack of consensus over how sovereignty functions in cyberspace reflects genuine disagreement over the creation and content of international law. But it also undoubtedly reflects important policy differences between states concerning the desirability of using low-intensity cyber operations for offensive purposes. Whatever the source, though, the lack of agreement over the international-law framework that applies to low-intensity cyber operations undermines the ability of states such as

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12. Ibid., 45.
Denmark to develop and execute their cyber strategies. States have no right to engage in cyber operations that violate international law; when they do, they bear responsibility for their internationally wrongful act.\textsuperscript{13} Moreover, a state targeted by a cyber operation that violates international law is entitled to engage in countermeasures\textsuperscript{14} against the responsible state.\textsuperscript{15} Disagreements over which kinds of low-intensity cyber operations are internationally wrongful thus make it significantly more likely that actual operations will cause legal and political conflict between states, because states contemplating an offensive operation will find it very difficult to predict whether the target state will deem the operation wrongful and respond with countermeasures.

This report provides a comprehensive analysis of the three positions that states have taken on whether non-consensual\textsuperscript{16} low-intensity cyber operations violate sovereignty. Section I lays out the positions, notes which states adopt them, and identifies how they differ in practice. Section II critiques the ‘sovereignty as a principle’ position currently defended solely by the UK, agreeing with the overwhelming majority of states that sovereignty functions in cyberspace as a rule, not as a principle. Section III provides a legal analysis of the two ‘sovereignty as a rule’ positions: pure sovereignty and relative sovereignty. It concludes that the pure-sovereignist position has a much stronger foundation in general international law than the relative-sovereignist position. Section IV rejects the most common legal objection to pure sovereignty: the supposed permissibility of espionage under international law. Section V shows how a variety of policy considerations also favour pure sovereign-

\textsuperscript{14} Countermeasures are ‘State actions, or omissions, directed at another State that would otherwise violate an obligation owed to that State and that are conducted by the former in order to compel or convince the latter to desist in its own internationally wrongful acts or omissions’. Michael N. Schmitt, “Below the Threshold Cyber Operations: The Countermeasures Response Option and International Law,” Virginia Journal of International Law 54 (2014): 698, 700.
\textsuperscript{15} International Law Commission, “Articles on Responsibilities,” 2000, Art. 49(1).
\textsuperscript{16} Because it is uncontroversial that a state can consent to a low-intensity cyber operation, this article addresses only those operations that are non-consensual. The expression ‘low-intensity cyber operation’ thus refers to operations taking place without the territorial state’s consent. For the sake of readability, the article will not constantly note that a low-intensity cyber operation is non-consensual.
ty over relative sovereignty. And finally, given Denmark’s need to defend itself against cyberattacks and its interest in contributing to the creation of customary international law, Section VI recommends that the Danish government should issue a public statement concerning whatever position on low-intensity cyber operations it decides to adopt.

The analysis in this report, it is important to note, has two limitations. First, it addresses only low-intensity cyber operations that take place in peacetime. The legality of offensive cyber operations in armed conflict, whether international or non-international, is determined by international humanitarian law as the lex specialis, requiring a separate and quite different legal analysis. Second, the report applies only to low-intensity cyber operations that are attributable to a state under the Articles on the Responsibility of States for Internationally Wrongful Acts (ARSIWA). It thus excludes from consideration cyber operations conducted by non-state actors of their own accord.
State Positions on Sovereignty

When states first began discussing in multilateral fora how international law applies in cyberspace, the idea that sovereignty is a primary rule of international law, not simply a principle from which specific rules are derived, seemed uncontroversial. In 2013, the Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security (GGE), which had been created by the General Assembly in 2004, issued a consensus report that concluded ‘state sovereignty and international norms and principles that flow from sovereignty apply to State conduct of ICT-related activities, and to their jurisdiction over ICT infrastructure within their territory’.

Two years later, the GGE – having expanded from 20 states to 25 – reaffirmed that position. The General Assembly adopted the GGE’s 2015 report by consensus.

In 2018, however, the United Kingdom publicly rejected the GGE position concerning the status of sovereignty, despite having been a member of the group in both 2013 and 2015. According to then-Attorney General Jeremy Wright, the official UK position is that sovereignty

2. State Positions on Sovereignty

is a principle, not a rule, and thus cannot be directly violated by a cyber operation:

Some have sought to argue for the existence of a cyber specific rule of a ‘violation of territorial sovereignty’ in relation to interference in the computer networks of another state without its consent. Sovereignty is of course fundamental to the international rules-based system. But I am not persuaded that we can currently extrapolate from that general principle a specific rule or additional prohibition for cyber activity beyond that of a prohibited intervention. The UK Government’s position is therefore that there is no such rule as a matter of current international law.20

To date, states have uniformly rejected the British position. Most strikingly, NATO’s Allied Joint Doctrine for Cyberspace clearly endorses the idea that sovereignty applies in cyberspace as a rule21 – a position that forced the UK to issue a reservation to the contrary.22 Moreover, nearly every state that has issued a public statement concerning international law and cyberspace since Wright’s speech has taken the same position as NATO. Three of those states (Brazil,23 France,24 and Germany25) were

22. Ibid. at page v (“The AJP refers to cyberspace operations as being, dependent on the context, potential violations of international law as a breach of sovereignty … [T]he UK government does not consider that the current state of international law allows for a specific rule or additional prohibition for cyberspace operations beyond that of a prohibited intervention”).
part of the 2015 GGE, making their affirmation unsurprising. But most were not, including Austria, Bolivia, the Czech Republic, Finland, Guatemala, Guyana, Iran, New Zealand, and Switzerland.

The US position, it is important to note, has oscillated over time. At first, the US seemed squarely in the sovereignty-as-a-rule camp. Presi-

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26. Quoted in Przemysław Roguski, "The Importance of New Statements on Sovereignty in Cyberspace by Austria, the Czech Republic and United States," Just Security, 11 May 2020, available at https://www.justsecurity.org/70108/the-importance-of-new-statements-on-sovereignty-in-cyberspace-by-austria-the-czech-republic-and-united-states/ (‘Austria has recently been the target of a severe cyber operation. In that context, we would like to refer to the principle of state sovereignty. A violation of this rule constitutes an internationally wrongful act – if attributable to a state – for which a target state may seek reparation under the law of state responsibility’).


31. Ibid., 30. It is also worth noting that the IGE conducted consultations with more than ‘50 states and international organizations’ over an early draft of Tallinn Manual, and not a single state objected to the idea, reflected in Rule 4, that sovereignty applies in cyberspace as a rule. See Michael N. Schmitt and Liis Vihul, “Respect for Sovereignty in Cyberspace,” Texas Law Review 95 (2017): 1639, 1649.
32. Iran, “Declaration of General Staff of the Armed Forces of the Islamic Republic of Iran Regarding International Law Applicable to the Cyberspace,” Nournews, Art. 2(2), July 2020, available at https://nournews.ir/En/News/53144/General-Staff-of-Iranian-Armed-Forces-Warns-of-Tough-Reaction-to-Any-Cyber-Threat (‘According to the armed forces of the Islamic Republic of Iran, the territorial sovereignty and jurisdiction of the states are also extended to all elements of the cyberspace’).

dent Obama’s 2011 International Strategy for Cyberspace affirmed that the ‘development of norms for state conduct in cyberspace does not re-
quire a reinvention of customary international law, nor does it render ex-
isting international norms obsolete. Long-standing international norms
guiding state behaviour – in times of peace and conflict – also apply in
cyberspace. The US also endorsed the GGE’s 2013 and 2015 reports.

In March 2020, however, the General Counsel of the Department of
Defense (DoD) explicitly rejected the idea that sovereignty is a primary
rule of international law in cyberspace:

*For cyber operations that would not constitute a prohibited intervention
or use-of-force, the Department believes there is not sufficiently wide-
spread and consistent State practice resulting from a sense of legal obli-
gation to conclude that customary international law generally prohibits
such non-consensual cyber operations in another State’s territory ... In-
deed, many States’ public silence in the face of countless publicly known
cyber intrusions into foreign networks precludes a conclusion that States
have coalesced around a common view that there is an international
prohibition against all such operations (regardless of whatever penalties
may be imposed under domestic law).*

US endorsement of the UK position, however, was short-lived. Almost
certainly as a result of the President Biden’s election, the US recently
stated – in response to the Final Report of the GGE, which was issued
in May 2021 – that ‘[i]n certain circumstances, one State’s non-con-
sensual cyber operation in another State’s territory, even if it falls below
the threshold of a use of force or nonintervention, could also violate

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international law. This assertion implies that the US now believes sovereignty can indeed function as a rule in cyberspace (at least sometimes).

Many states hoped that the UN Open Ended Working Group (OEWG), which was created by the General Assembly in 2019 and was open (unlike the GGE) to ‘all interested states’, would help bring clarity to the status of sovereignty in cyberspace, as well as to a number of other contested international law issues. Unfortunately, states were ultimately unable to agree on binding international rules. The OEWG’s Final Report thus simply affirms the applicability of international law in cyberspace and articulates 11 ‘voluntary, non-binding norms of responsible State behaviour’.

Because the OEWG was unable to reach consensus on binding rules, there is currently no international consensus concerning whether sovereignty functions in cyberspace as a rule or as a principle. Moreover, although the vast majority of states take the former position, they disagree among themselves over how sovereignty functions as a rule in cyberspace. Some states endorse pure sovereignty, believing that any low-intensity cyber operation that involves penetrating a computer system located on another state’s territory violates the targeted state’s sovereignty. Others, by contrast, adopt relative sovereignty, insisting that a low-intensity cyber operation violates sovereignty only if it causes some kind of harm to the territorial state.

In short, states currently endorse three different positions on how sovereignty applies in cyberspace: (1) sovereignty as a principle, (2) pure sovereignty, and (3) relative sovereignty.

40. Ibid., 2, bullet 8.
2. State Positions on Sovereignty

2.1. Sovereignty as a Principle

The ‘sovereignty as a principle’ position is straightforward: an extraterritorial cyber operation is internationally wrongful only if it violates the principle of non-intervention or the prohibition of the use of force. This position, adopted to date only by the UK, gives states carte blanche to conduct low-intensity cyber operations on the territory of other states – for law-enforcement or for espionage – without fear of legal retaliation. As noted earlier, states are entitled to engage in countermeasures only in response to internationally wrongful acts.

2.2. Pure Sovereignty

The pure-sovereignist position rejects the idea that a low-intensity cyber operation is internationally wrongful only if it rises to the level of a prohibited intervention or prohibited use of force. On the contrary, it insists that all low-intensity cyber operations are internationally wrongful, because sovereignty prohibits a state from penetrating a computer system on another state’s territory without that state’s consent. Under pure sovereignty, therefore, a state targeted by a low-intensity cyber operation always has the right to engage in countermeasures against the state responsible for the operation.

At least three states have explicitly adopted the pure-sovereignist position: France, Iran, and Switzerland. France’s public statement about how international law applies in cyberspace says that ‘[a]ny cyberattack against French digital systems … constitutes a breach of sovereignty’.

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41. See, e.g., Gary P. Corn and Robert Taylor, “Sovereignty in the Age of Cyber,” *AJIL Unbound* 111 (2017): 210 (‘Because the doctrine of sovereignty does not prevent all actions by one state that affect another state or even “encroachment on other sovereign jurisdictions”, a state involved in operations against ISIS, such as the United States, is not precluded from taking action against ISIS’s cyber facilities in other states, even without the consent of the host state, unless doing so constitutes a prohibited intervention or use of force’).


and defines French digital systems to include all ‘information systems located on its territory’.44 Iran claims that ‘[a]ny utilization of cyberspace if and when involves unlawful intrusion to the (public or private) cyber structures which is under the control of another state, may be constituted as the violation of the sovereignty of the targeted state’.45 And Switzerland asserts that ‘state sovereignty protects information and communication technologies (ICT) infrastructure on a state’s territory against unauthorised intrusion or material damage’, including ‘computer networks systems and software supported by the ICT infrastructure, regardless of whether the infrastructure is private or public’.46

A fourth state, Guatemala, has adopted a position that borders on pure sovereignty: ‘a State participating in a specific cyber operation violates a country’s sovereignty if, in the course of a cyberattack, it takes certain information from another State’s cyber realm, even when no harm that could affect equipment or the human rights of a person or persons is caused’.47 This position does not require a low-intensity cyber operation to cause harm – thus distinguishing it from the relative-sovereignist position discussed below – but it requires more than merely penetrating a computer system located on another state’s territory.

Six other states have endorsed a position similar to Guatemala’s. In 2013, WikiLeaks revealed that the US National Security Agency (NSA) had systematically intercepted the email and telephone communications of dozens of governments (friend and foe), international organizations, and NGOs.48 In response, Mercosur issued a statement on behalf of its five members (Argentina, Brazil, Paraguay, Uruguay, and Venezuela) ‘[s]trongly rejecting the interception of telecommunications and the acts of espionage carried out in our countries’ on the ground that it ‘violates our sovereignty’.49 The Bahamas also protested, insisting that international law guarantees in cyberspace ‘the primacy of sovereignty, maintenance

44. Ibid., 6.
of territorial integrity, [and] freedom from undue external intrusion and
influence. Given that the NSA cyber espionage did not cause any kind
of harm to the penetrated computer systems, these statements strongly
suggest that Argentina, the Bahamas, Brazil, Paraguay, Uruguay, and
Venezuela subscribe to some version of the pure-sovereigntist position.

Finally, NATO appears to believe at least some low-intensity cyber
operations that do not result in physical damage or render cyberinfra-
structure inoperable are capable of violating sovereignty. The NATO
Allied Joint Command Doctrine says that cyber operations ‘that cre-
ate only temporary disruptions or denials of service, or those intended
merely for disseminating or gathering information … may nevertheless
constitute a violation of international law as a breach of sovereignty’.
Although that statement does not explicitly endorse pure sovereignty, it
is closer to the pure-sovereigntist position than to the relative-sovereign-
tist position discussed below. The fuzziness of NATO’s position likely
reflects the fact that its members are themselves divided over how terri-
torial sovereignty functions in cyberspace.

2.3. Relative Sovereignty

The relative-sovereigntist position shares the pure-sovereigntist belief
that a cyber operation can be internationally wrongful even if it does not
violate the principle of non-intervention or the prohibition of the use of
force. But it rejects the idea that merely penetrating a computer system
located on another state’s territory without its consent violates the tar-
geted state’s sovereignty. According to relative sovereignty, a low-inten-
sity cyber operation is internationally wrongful – thus permitting coun-
termeasures – only if it causes some kind of harm to the territorial state
or interferes with or usurps one of its inherently governmental functions.

As this phrasing indicates, the relative-sovereigntist position focuses
on two aspects of what has been called the ‘internal dimension’ of state
sovereignty: territorial integrity and governmental exclusivity. Territo-

2.3. Relative Sovereignty

Territorial integrity refers to a state’s right ‘to exercise supreme authority over all persons and things within its territory’ without ‘any form of interference’ by other states. Governmental exclusivity refers to the right of each state to freely choose its ‘political, economic, social, and cultural system’ and determine its own foreign policy.

2.3.1. The Tallinn Manual 2.0

The relative-sovereignist idea that a low-intensity cyber operation can be internationally wrongful by violating either aspect of sovereignty’s internal dimensions (territorial integrity or governmental exclusivity) is specifically based on the Tallinn Manual 2.0.

The International Group of Experts (IGE) responsible for the Manual debated whether three different kinds of low-intensity cyber operations violate a state’s territorial integrity. The first is a cyber operation that causes physical damage, such as ‘malware that causes the malfunctioning of the cooling elements of equipment, thereby leading to overheating that results in components melting down.’ The vast majority of the IGE agreed that such an operation violates sovereignty. The second is a cyber operation that causes cyberinfrastructure in the territorial state to lose significant functionality, such as the 2012 Shamoon 1 virus, which rendered inoperable thousands of hard drives used by Saudi Aramco. The IGE agreed that sovereignty prohibits ‘a cyber operation necessitating repair or replacement of physical components of cyber infrastructure amounts to a violation because such consequences are akin to physical damage or injury.’

The third kind of cyber operation is one that causes neither physical damage nor any equivalent loss of cyberinfrastructure functionality.

56. Ibid.
57. Ibid.
58. Ibid., 21.
59. Ibid.
Non-harmful operations\(^{60}\) the IGE debated include ‘causing cyber infrastructure or programs to operate differently; altering or deleting data stored in cyber infrastructure without causing physical or functional consequences, as described above; emplacing malware into a system; installing backdoors; and causing a temporary, but significant, loss of functionality, as in the case of a major [denial of service] operation’\(^{61}\). The IGE could not reach consensus on these kinds of operations\(^{62}\).

The IGE was less divided concerning governmental exclusivity, although it struggled ‘definitively’ to define the concept of an ‘inherently governmental function’.\(^{63}\) Most importantly, the experts agreed that, for cyber operations in this category, ‘[i]t matters not whether physical damage, injury, or loss of functionality has resulted or whether the operation qualifies in accordance with the various differing positions outlined above for operations that do not result in a loss of functionality’\(^{64}\).

A cyber operation interferes with an inherently governmental function when it disrupts ‘data or services’ that are necessary for that function to operate normally. Examples include ‘changing or deleting data such that it interferes with the delivery of social services, the conduct of elections, the collection of taxes, the effective conduct of diplomacy, and the performance of key national defence activities’\(^{65}\). By contrast, usurpation refers to a remote cyber operation that involves engaging in an inherently governmental function that is ‘exclusively reserved to another State on the latter’s territory’\(^{66}\) – the most important of which, according to the IGE, is law-enforcement\(^{67}\).

### 2.3.2. State Positions

Eight states currently endorse relative sovereignty: the Netherlands, the Czech Republic, Finland, New Zealand, Germany, Guyana, Norway, and (as of 2021) the US. With regard to governmental exclusivity, there

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60. For the sake of readability, this report often refers to ‘harmful’ and ‘non-harmful’ cyber operations. Harmful cyber operations include both those that cause physical damage and those that cause loss of cyberinfrastructure functionality equivalent to physical damage. Non-harmful refers to all other low-intensity cyber operations.


62. Ibid.

63. Ibid., 22.

64. Ibid.

65. Ibid.

66. Ibid., 23.

67. Ibid., 22–3.
appears to be no differences between the relative-sovereignist states. Finland, the Czech Republic, New Zealand, the Netherlands, Norway, and Guyana have each made statements that effectively endorse the Tallinn Manual 2.0’s position on usurpation and interference. New Zealand and the Netherlands have also publicly agreed with the IGE conclusion that governmental sovereignty prohibits a state from engaging in extraterritorial law-enforcement.

With regard to territorial integrity, relative-sovereignist states agree that a low-intensity cyber operation is not internationally wrongful unless it causes some kind of harm to the state targeted by the operation. ‘Some kind of harm’ is obviously a rather vague expression. Unfortunately, the eight states that have endorsed relative sovereignty have not coalesced around a common understanding of what kind of harm separates a lawful low-intensity cyber operation from an unlawful one. The Czech Republic seems to set the bar the highest, limiting violations of sovereignty to cyber operations involving ‘damage to or disruption of cyber or other infrastructure’ that has ‘a significant impact on national security,’

68. Finland, Ministry of Foreign Affairs, “International Law,” 2020, 2 (‘[A]n unauthorized intrusion by cyber means may be seen as a violation of the target State’s territorial sovereignty if it interferes with data or services that are necessary for the exercise of inherently governmental functions’).
69. Czech Republic, National Cyber and Information Security Agency, “Statement by Mr. Richard Kadlec,” 2020, 3 (arguing that a low-intensity cyber operation violates sovereignty if its interference with ‘data or services’ has a ‘significantly disrupting’ effect on the exercise of inherently governmental functions’).
70. New Zealand, Ministry of Foreign Affairs and Trade, “The Application,” 2020, 2 (‘The principle of sovereignty prohibits the interference by one state in the inherently governmental functions of another’).
73. See Organization of American States, “Improving Transparency,” 2020, 30 (insisting that whether a low-intensity cyber operation violates sovereignty depends not only on territorial intrusion, but also on the degree of infringement and whether there has been an interference with government functions’).
economy, public health or environment’. The Netherlands simply endorses Rule 4 of the Tallinn Manual, thereby requiring the cyber operation to cause physical damage or equivalent loss of cyberinfrastructure functionality – a position echoed by Norway. And according to Finland, a cyber operation that causes ‘material harm’ violates sovereignty.

Four other states that endorse the relative-sovereignist position have provided almost no indication of what kind of harm is required. Germany says only that ‘negligible physical effects and functional impairments below a certain impact threshold cannot – taken by themselves – be deemed to constitute a violation of territorial sovereignty’, while the US simply insists that sovereignty cannot be violated when a cyber operation has ‘no effects or de minimis effects’. Guyana is similarly unhelpful, asserting that whether a low-intensity cyber operation violates sovereignty depends on ‘the degree of infringement’ involved in the operation. And New Zealand is the least helpful of all, noting only that ‘there is a range of circumstances – in addition to pure espionage activity – in which an unauthorised cyber intrusion, including one causing effects on the territory of another state, would not be internationally wrongful’.

2.4. Practical Differences

In practical terms, the UK ‘sovereignty as a principle’ position differs substantially from the two positions that view sovereignty as a rule.

78. Finland, Ministry of Foreign Affairs, “International Law,” 2020, 2. Finland also suggests that a ‘relevant consideration’ in determining a violation of sovereignty is whether a low-intensity cyber operation ‘modifies or deletes information’. Ibid. It is unclear, however, whether Finland believes that modification or deletion of information, standing alone, is sufficient for a sovereignty violation.
Whereas the latter impose limits on what kinds of low-intensity cyber operations a state can lawfully engage in, the former views all such operations as lawful. For the UK, a cyber operation is internationally wrongful – thus entitling the targeted state to engage in countermeasures – only if it violates the principle of non-intervention or the prohibition of the use of force.

In addition to viewing sovereignty in cyberspace as a rule and not a principle, the pure-sovereigntist and relative-sovereigntist positions agree that extraterritorial law enforcement (including counterterrorism) violates the sovereignty of the territorial state. According to pure sovereignty, low-intensity law-enforcement operations are internationally wrongful simply because they involve penetrating a computer system located on another state’s territory. According to relative sovereignty, low-intensity law-enforcement operations violate sovereignty because they usurp one of the targeted state’s inherently governmental functions – a type of violation that does not require causing any kind of harm to the penetrated computer system.

The most significant difference between the pure-sovereigntist and relative-sovereigntist positions, therefore, concerns the legality of cyber espionage. Pure sovereignty deems all cyber espionage unlawful because it necessarily involves non-consensually penetrating a computer system on another state’s territory.83 By contrast, despite their differences, the eight states that have adopted relative sovereignty agree that the mere penetration of a computer system is not enough. That means that they all accept that cyber espionage is lawful – from installing backdoors to exfiltrating information – as long as it does not cause any harm to the targeted state’s cyberinfrastructure.

83. Interestingly, France’s statement on international law in cyberspace includes a footnote stating, ‘[t]his document does not contain any specific analysis or treatment of cyberespionage, which is not illegal in international law, though it may infringe such law when linked with an internationally wrongful act’. France, Ministry of Defence, “International Law Applied,” 2019, 4, n. 2. Unless France believes that there is an exception in customary international law specifically permitting espionage (a possibility considered and rejected in the next section), the pure-sovereigntist French approach would deem all acts of cyber espionage on its territory internationally wrongful, because cyber espionage by definition involves non-consensually penetrating a French computer system.
Read closely, the British statement on cyberspace does not deny that, under general international law, sovereignty is a primary rule distinct from the prohibition of the use of force and the principle of non-intervention. That is unsurprising, because the idea that sovereignty is a primary rule is supported not only by International Court of Justice (ICJ) jurisprudence,84 but also by multilateral treaties,85 General Assembly resolutions,86 and a vast amount of state practice and opinio juris.


85. Examples include the UN Convention Against Transnational Organized Crime, which provides that 'States Parties shall carry out their obligations under this Convention in a manner consistent with the principles of sovereign equality and territorial integrity of States and that of nonintervention in the domestic affairs of other States,' United Nations, Office on Drugs and Crime, "United Nations Convention Against Transnational Organized Crime," General Assembly resolution, Res. 55/25, Annex, Art. 4 (15 November 2000) and the Helsinki Accord, which contain separate provisions on sovereignty, the use of force, and intervention. Final Act of the Conference on Security and Cooperation in Europe, Arts. 1, 2, 6, 14 ILM 1292, OSCE (August 1975).

86. The best example is the Friendly Relations Declaration, adopted by consensus by the General Assembly in 1970, which specifically distinguishes between the prohibition of the use of force, the principle of non-intervention, and sovereignty when itemizing the rules of international law that govern cooperation between states. General Assembly of United
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concerning actions on land,^87 in the air,^88 and at sea.^89 Instead, the UK position is based on the idea that – to quote the now-superseded statement by the DoD General Counsel in 2020 – ‘there is not sufficiently widespread and consistent State practice resulting from a sense of legal obligation to conclude that customary international law generally prohibits ... non-consensual cyber operations in another State’s territory’.^90 In other words, the argument is that although sovereignty functions as a primary rule of international law in the physical world, that rule does not apply in cyberspace.

There are two significant problems with the UK position. The first is that it significantly overstates the extent of international disagreement concerning whether sovereignty applies in cyberspace in the same way as it applies in the physical world.^91 As we have seen, no other state current-
ly endorses the UK position, and at least two dozen states have explicitly rejected it.

The second and more important problem is that there is actually no need to find a rule of customary international law that ‘extends’ sovereignty into cyberspace, because general rules of international law have long been understood to apply in a technologically neutral manner. In the landmark Legality of the Threat or Use of Nuclear Weapons case, for example, nuclear states argued that generally applicable rules of international humanitarian law (IHL), such as distinction and proportionality, could not be applied to nuclear weapons because those weapons did not exist at the time the general rules were created. The ICJ disagreed:

[T]here is a qualitative as well as quantitative difference between nuclear weapons and all conventional arms. However, it cannot be concluded from this that the established principles and rules of humanitarian law applicable in armed conflict did not apply to nuclear weapons. Such a conclusion would be incompatible with the intrinsically humanitarian character of the legal principles in question which permeates the entire law of armed conflict and applies to all forms of warfare and to all kinds of weapons, those of the past, those of the present and those of the future.92

The Court reached a similar conclusion concerning three conventional rules of the jus ad bellum – the prohibition of the use of force, the right of self-defence against an armed attack, and the power of the Security Council to authorize military action in response to a breach of the peace or an act of aggression. ‘These provisions’, the Court noted, ‘do not refer to specific weapons’. The Court thus held that, as general rules, they apply ‘to any use of force, regardless of the weapons employed’.93

ever, have not led the UK to rethink it. On the contrary, in its 2021 submission of the GGE, the UK again insisted that it ‘does not consider that the general concept of sovereignty by itself provides a sufficient or clear basis for extrapolating a specific rule or additional prohibition for cyber conduct going beyond that of non-intervention’). See United Kingdom, “Application of International Law to States’ Conduct in Cyberspace,” Government of United Kingdom (3 June 2021): bullet 10, available at https://www.gov.uk/government/publications/application-of-international-law-to-states-conduct-in-cyberspace-uk-statement/application-of-international-law-to-states-conduct-in-cyberspace-uk-statement.

93. Ibid., bullet 38.
The idea that it is unnecessary to find sufficient state practice and opinio juris for specific applications of a general rule of international law should not be controversial – even in the context of cyberspace. After all, states overwhelmingly agree that the basic rules of IHL, including the principle of distinction, apply equally to cyber and kinetic attacks. That position has been taken, inter alia, by the GGE, NATO, the EU, and nearly the entirety of the OAS. Those rules long predated the cyber era, yet no state suggested in those fora (or has suggested since) that sufficient cyber-specific state practice and opinio juris is required to extend them to cyberattacks.

The UK position on sovereignty in cyberspace makes sense, in short, only if the primary rule of sovereignty in international law is limited to kinetic activities. Applying the rule to cyberspace would then require sufficient state practice and opinio juris to justify the extension. But that is not the case: like the basic rules of the jus in bello and jus ad bellum, sovereignty is a general rule that is not limited to particular means of interfering with a state’s exclusive right to control its territory and determine its foreign policy. As the Permanent Court of International Justice (PCIJ) said in the seminal Lotus case:

\[
\text{(T)he first and foremost restriction imposed by international law upon a State is that – failing the existence of a permissive rule to the contrary – it may not exercise its power in any form in the territory of another}
\]

94. United Nations, Office of Disarmament Affairs, "Report of Governmental Experts," 2021: bulletin 71(f) (noting the applicability in cyberspace of 'established international legal principles, including, where applicable, the principles of humanity, necessity, proportionality and distinction').

95. NATO, "Allied Joint Publication-3.20," 2020, 19 ('NATO COs must be conducted in accordance with international law, including the United Nations (UN) Charter, Law of Armed Conflict (LOAC) and human rights law, as applicable').


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State. In this sense jurisdiction is certainly territorial; it cannot be exer-
cised by a State outside its territory except by virtue of a permissive rule
derived from international custom or from a convention.98

Because sovereignty is a general rule, the UK is wrong to insist that state
practice and opinio juris must establish that sovereignty applies in cyber-
space. On the contrary, the default position is that sovereignty applies in
cyberspace no less than in the physical world, with the burden of proof
on the UK to show otherwise.99 That is a burden it cannot satisfy, given
that other states uniformly believe that sovereignty is a general rule of
international law.

98. The Permanent Court of International Justice, “The Case of the S.S. Lotus,” The Permanent
Court of International Justice Series A, No. 10 (7 September 1927): 18-19 (emphasis added).
99. See Dapo Akande et al., “Old Habits Die Hard: Applying Existing International Law in
Pure Sovereignty vs. Relative Sovereignty

The fundamental issue concerning the legality of non-consensual, low-intensity cyber operations is thus not whether sovereignty applies to them but how. Given how sovereignty functions in the physical world, the pure-sovereigntist position has a much stronger legal foundation than the relative-sovereigntist one.

4.1. Extraterritorial Power and the Lotus Case

The argument for the pure-sovereigntist position is straightforward: the first Lotus principle prohibits a state from exercising ‘any form’ of power on the territory of another state in the absence of an international rule permitting it to do so; penetrating a computer system in another state is a form of exercising power on that state’s territory; no permissive rule of international law authorises such penetration. All low-intensity cyber operations, therefore, violate the territorial state’s sovereignty, even those that do not cause any harm.

The first Lotus principle is widely considered to accurately reflect how customary international law understands territorial sovereignty.100 Indeed, even the Tallinn Manual 2.0 takes the position that the princi-

100. See, e.g., Simon Chesterman, “The Spy Who Came in from the Cold War: Intelligence and International Law, Michigan Journal of International Law 27, no. 4 (2006): 1071, 1081 (‘The foundational rules of sovereignty ... provide some guidance on what restrictions, if any, might be placed on different forms of intelligence gathering that do not rise to the
pure is customary: “The Experts agreed that a violation of sovereignty occurs whenever one State physically crosses into the territory or national airspace of another State without either its consent or another justification in international law.”¹⁰¹ The Manual specifically cites Lotus for that point.¹⁰²

More importantly, the first Lotus principle is consistent with state practice. In terms of airspace, for example, the U.S. Department of Defense has noted that aerial warfare has led to the creation of ‘a highly restricted regime of air law in which any entry into a nation’s airspace without its permission [is] to be regarded as a serious violation of its sovereignty and territorial integrity’.¹⁰³ That highly-restricted regime is explicitly embraced by the Chicago Convention on International Civil Aviation, which ‘affirms that every state enjoys complete and exclusive sovereignty over the airspace above its territory’¹⁰⁴ and categorically prohibits all state aircraft from entering another state’s airspace without its consent.¹⁰⁵ And states have routinely invoked their territorial sovereignty to condemn even the most minor and harmless incursions into their airspace as sovereignty violations (e.g., Estonia’s formal complaint to Russia when a Russian jet entered its airspace for less than 60 seconds).¹⁰⁶

States also view unauthorized entry into their territorial sea as a violation of sovereignty, even when that entry does not cause any harm.¹⁰⁷ To be sure, that inviolability is limited by a variety of rights of passage and entry. But as Schmitt and Vihul note, ‘[t]he regimes of innocent, transit, and archipelagic passage developed as customary and treaty-law

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¹⁰² Ibid., 67, n. 82.
¹⁰⁵ Ibid. Art. 3(c).
exceptions to the territorial sea’s inviolability; they modify the baseline principle that maritime borders may not be pierced by other States.\textsuperscript{108}

State practice on land generally concerns abduction, which normally involves no harm. States have routinely protested abductions from their territory as inconsistent with their sovereignty.\textsuperscript{109} We have already noted the most famous example, Israel’s kidnapping of Eichmann in Argentina, which was explicitly condemned on sovereignty grounds by the Security Council. A more recent example is the US kidnapping of Abu Omar from the streets of Milan, which led Italy to insist that the US had a legal duty to ‘fully respect Italian sovereignty.’\textsuperscript{110}

\section*{4.2. Lotus in Cyberspace}

Two propositions, in short, have a strong basis in international law. The first is that sovereignty functions in cyberspace as a rule, not as a principle, because it is a general rule of international law that applies to all forms of exercising power on another state’s territory. The second is that the general rule of sovereignty in the physical world prohibits any penetration of a state’s territory, even penetration that is completely harmless.

Taken together, those propositions suggest that, in terms of low-intensity cyber operations, the pure-sovereigntist position is correct: any remote penetration of a computer system, even penetration that does not cause any harm, violates the territorial sovereignty of the state in which the computer system is located. Simply put, there is no reason to believe that sovereignty functions any differently in cyberspace than in the physical world: ‘the same rules regarding violation of sovereignty apply whether the exercise of authority by the perpetrating state is carried out through a physical presence on the territory of the affected state or remotely from outside the affected territory.’\textsuperscript{111}

\begin{footnotesize}
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\item[Ibid., at 1645.]
\item[111. Moynihan, “The Application,” 2020, 17; \textit{see also} Chircop, “Territorial Sovereignty in Cyberspace,” 2019, 20 ([T]he strongest argument in favour of the strict inviolability approach is that an equivalent standard of territorial sovereignty has long been accepted by states in]
\end{enumerate}
\end{footnotesize}
This conclusion is supported by the ICJ’s insistence in the Legality of the Threat or Use of Nuclear Weapons case that general rules of international law are normally technologically neutral. When a state uses a low-intensity cyber operation to obtain evidence of a crime, delete terrorist recruiting videos, or steal corporate IP, it is still engaging in law enforcement, counterterrorism, or espionage. Only the means of carrying out those traditional state functions are different. The idea that sovereignty functions differently in cyberspace than in the physical world is thus no more compelling than the idea that key rules of IHL function differently for nuclear weapons than for conventional ones.

Moreover, despite its seeming virtuality, cyberspace is no less a territorial domain than air, sea, or land. As the Tallinn Manual 2.0 points out, ‘[c]yber activities occur on territory and involve objects, or are conducted by persons or entities, over which States may exercise their sovereign prerogatives.’ This means that a state’s sovereign right to protect data is no different than its sovereign right to protect brick-and-mortar objects. There is no reason why the general rule of sovereignty would provide a state’s cyberinfrastructure with less protection than its physical infrastructure.

4.3. Are Low-Intensity Cyber Operations an ‘Exercise of Power’?

The first Lotus principle applies to remote low-intensity cyber operations only if they qualify as a state ‘exercis[ing] its power … in the territory of another state’. But that is clearly the case. As we have seen, in the physical world, the mere penetration of a state’s airspace, territorial

respect of physical space, and that the content of the principle should not differ across the physical and cyber domains’.

113. Chircop, 2019, 17 (‘The critical next step is to recognise that states also exercise territorial sovereignty over data emanating from their cyber infrastructure. The basis of a state’s claim to territorial sovereignty over data remains physical, in that it is limited to data that emanates from infrastructure located on its territory’).
114. See, e.g., ibid., 23 (pointing out that ‘it would be curious if the rule of territorial sovereignty provided a state’s sovereign cyber infrastructure with less protection from intrusion than a state’s sovereign physical territory’).
sea, or land qualifies as an exercise of power that violates the first Lotus principle in the absence of a conventional or customary exception allowing it; no physical effects, much less actual harm, is required. Mutatis mutandis, merely penetrating a computer system located on another state’s territory, should also qualify as an exercise of power. In both contexts, the salient characteristic of the act is that a state is exercising its sovereign authority on the territory of another state without its consent.

Such ‘mere penetration’, it is important to note, is distinguishable from situations in which a state intercepts wireless signals emanating from another state without penetrating a computer system located on its territory. That kind of interception does not violate sovereignty, because the interception is not considered extraterritorial. In Weber and Saravia v. Germany, for example, the European Court of Human Rights (ECHR) affirmed the legality of a program in which ‘[s]ignals emitted from foreign countries are monitored by interception sites situated on German soil’. The ECHR held that such ‘strategic monitoring measures’ did not violate Uruguay’s territorial sovereignty because they involved ‘international wireless telecommunications, that is, telecommunications which are not effected via fixed telephone lines but, for example, via satellite or radio relay links’.

These kinds of cyber operations, which also include using spy satellites to intercept wireless signals, do not violate territorial sovereignty for two reasons: (1) the state agents intercepting the information are located outside of the targeted state; and (2) the interception does not require penetrating cyber infrastructure located on the targeted state’s territory. A low-intensity cyber operation satisfies (1) but not (2): although the operation is conducted remotely, obtaining the information...

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115. See, e.g., Patricia L. Bellia, “Chasing Bits Across Borders,” The University Chicago Legal Forum (2001): 35, 77 (rejecting the argument that ‘a remote search is less invasive than a physical search’ because ‘[i]f the sovereignty interest at issue is the target state’s power to protect persons and property within its borders, it does not matter whether interference with that power comes from inside or outside of the target state’); Moynihan, “The Application,” 2020, 19-20 (‘There seems to be no reason in principle to distinguish physical violations (i.e. activity carried out by a state agent physically on the territory of the victim state) and remote violations (i.e. activity carried out from outside the affected state’s territory’).


117. Ibid.

requires penetrating computer systems located on the territory of the targeted state.\(^{119}\) Such low-intensity cyber operations thus involve precisely the ‘exercise [of] power ... in the territory of another state’ that the first Lotus principle prohibits.\(^{120}\)

This analysis is supported by the Tallinn Manual 2.0 itself. The Manual specifically distinguishes between remote cyber operations that simply intercept wireless signals and remote cyber operations that involve penetrating computer systems located on the territory of another state. In the IGE’s view, the former cannot violate sovereignty ‘because the cyber operation does not manifest in cyber infrastructure on the target State’s territory’.\(^{121}\) By contrast, the latter at least potentially violates sovereignty, because such operations do territorially manifest.\(^{122}\) In other words, the IGE does not deny that low-intensity cyber operations are an ‘exercise [of] power ... in the territory of another state’. Instead, it suggests that the ‘precise legal character’ of such operations ‘is somewhat unsettled in international law’.\(^{123}\)

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119. See, e.g., Katharina Ziolkowski, “Peacetime Cyber Espionage: New Tendencies in International Law,” in Peacetime Regime for State Activities in Cyberspace: International Law, International Relations and Diplomacy, ed. Katharina Ziolkowski (NATO CCD COE Publications, 2013): 425, 429 (arguing that cyber espionage does not include ‘electronic reconnaissance and surveillance methods ... using, for example, satellites, long-range cameras and acoustic devices, as such methods do not include copying of data from IT-systems or computer networks’).

120. See, e.g., Sean Watts, “Low-Intensity Cyber Operations and the Principle of Non-Intervention,” Baltic Yearbook of International Law 14 (2017): 137, 145 (‘[I]t could well be argued that the intrusion by US officials into data stored on servers located on German soil amounts to a violation of Germany’s territorial sovereignty because they are hereby, albeit remotely, exercising US governmental authority on German territory without German consent’; Przemyslaw Roguski, “Violations of Territorial Sovereignty in Cyberspace: An Intrusion-based Approach.” In Governing Cyberspace: Behavior, Power, and Diplomacy, edited by Dennis Broeders and Bibi van den Berg (London: Rowman & Littlefield, 2020): 75 (‘If the agents of a state perform cyber operations within the cyber infrastructure of another state in ways other than the intended use of said cyber infrastructure, that is, by violating the information security of computer systems, they exercise state power vis-à-vis cyber infrastructure under the jurisdiction of another state’)).


122. Ibid., 20.

123. Ibid.
4.4. Does a Permissive Rule Apply to Low-Intensity Cyber Operations?

Because remotely penetrating a computer system involves the ‘exercise of power ... in the territory of another state’, all low-intensity cyber operations violate the first Lotus principle unless there is either a conventional or customary rule that permits such penetration. There are numerous conventional rules that explicitly permit states, on an exceptional basis, to violate another state’s territorial sovereignty. An obvious example is Art. 17 of UNCLOS, which provides that, ‘[s]ubject to this Convention, ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea’. By contrast, no convention explicitly or even implicitly permits states to engage in low-intensity cyber operations on the territory of another state as long as they are not harmful.

There is also no persuasive argument that customary international law imposes a de minimis test on low-intensity cyber operations that it does not impose on physical violations of territorial sovereignty. Even if ratifications of the Budapest Convention do not count as evidence to the contrary, the state practice discussed above indicates that, at best, states are nearly equally divided between the pure-sovereigntist and relative-sovereigntist positions. That is far from the ‘general practice’ that the creation of a customary cyber exception to the first Lotus principle requires.

The Question of Espionage

Despite some members of the IGE defending the pure-sovereigntist position, the Tallinn Manual 2.0 insists that ‘[t]he precise legal character of remote cyber operations that manifest on a State’s territory is somewhat unsettled in international law’. The IGE’s reluctance to endorse pure sovereignty appears to be based on the supposed lawfulness of espionage under international law: given the nature of general rules, if sovereignty does not prohibit espionage in the physical world, there is no reason to assume it prohibits espionage in cyberspace. And if cyber espionage is lawful, the pure-sovereigntist position cannot be correct.

The espionage argument takes two very different forms: (1) espionage is affirmatively permitted by international law; and (2) international law does not regulate espionage, so it is neither affirmatively lawful nor affirmatively unlawful. Neither argument is persuasive.

5.1. Is Espionage Lawful?

A minority of scholars make the more assertive claim that state practice and opinio juris have created a customary exception to territorial sovereignty that permits states to engage in espionage, whether kinetic or cyber. Brown and Poellet argue, for example, that ‘[y]ears of state practice accepting violations of territorial sovereignty for the purpose of espionage have apparently led to the establishment of an exception

to traditional rules of sovereignty – a new norm seems to have been created.\textsuperscript{127}

This argument, however, suffers from a glaring problem: although states clearly engage in espionage in the physical world and in cyberspace, they rarely, if ever, argue that international law entitles them to do so.\textsuperscript{128} The creation of customary international law requires both state practice and opinio juris; state practice is not enough.\textsuperscript{129} ‘The brute fact that espionage is commonplace is thus incapable on its own of creating a customary exception to territorial sovereignty.\textsuperscript{130} Moreover, numerous states have denounced espionage as unlawful – opinio juris that cuts precisely the other way. A particularly powerful example is Mercosur’s five-party statement ‘strongly rejecting the [NSA’s] interception of telecommunications and the acts of espionage carried out in our countries’ on the ground that such ‘unacceptable behaviour … violates our sovereignty’.\textsuperscript{131}

The idea that international law prohibits espionage is supported by the fact that most states criminalize espionage conducted on their ter-

\textsuperscript{127} Gary Brown and Keira Poellet, “The Customary International Law of Cyberspace,” \textit{Strategic Studies Quarterly} 6, no. 3 (2012): 126, 134; see also Jeffrey H. Smith, “Symposium: State Intelligence Gathering and International Law: Keynote Address,” \textit{Michigan Journal of International Law} 28, no. 3 (2007): 543, 544 (‘[B]ecause espionage is such a fixture in international affairs, it is fair to say that the practice of states recognizes espionage as a legitimate function of the state, and therefore it is legal as a matter of customary international law’).

\textsuperscript{128} See, e.g., Buchan, “Cyber Espionage,” 2015, 162 (noting that, although ‘on rare occasions states have publicly acknowledged their espionage activities and, in doing so, have sought to provide justifications for this conduct … these states have steadfastly refused to justify their conduct on the basis that it is lawful under customary international law’); Pål Wråge, “Intervention in National and Private Cyberspace and International Law,” in \textit{International Law and Changing Perceptions of Security: Liber Amicorum Said Mahmoudi}, eds. Jonas Ebbesson et al. (Brill/Nijhoff, 2014): 307, 321 (‘I know of no state that has publicly claimed that espionage in all its forms is legal. On the contrary, states generally deny being involved in illegal espionage, and admit only when there is full proof’).

\textsuperscript{129} See, e.g., International Court of Justice, “North Sea Continental Shelf Cases (Ger./Den.; Ger./Neth.),” Judgment, \textit{International Court of Justice} Rep. 3 (20 February 1969): bullet 77 (‘Not only must the acts concerned amount to a settled practice, but they must also be such, or be carried out in such a way, as to be evidence of a belief that this practice is rendered obligatory by the existence of a rule of law requiring it’).

\textsuperscript{130} See, e.g., Craig Forcese, “Spies Without Borders: International Law and Intelligence Collection,” \textit{Journal of National Security Law and Policy} 5 (2011): 179, 202 (‘Even if it is commonplace, spying is a poor candidate for a customary international law exception to sovereignty – whatever state practice exists in the area is hardly accompanied by opinio juris’).

5.2. Is Espionage Unregulated?

The weakness of the idea that espionage is affirmatively permitted by international law likely explains why the IGE takes the position that espionage is simply unregulated by international law; neither permitted nor prohibited. This position has the advantage of making the widespread domestic criminalization of espionage irrelevant to whether international law prohibits committing espionage on the territory of another state. If the baseline position is that espionage is unregulated by international law, the fact that states choose to criminalize espionage domestically does not count – at least without more – as either state

135. Schmitt (ed.), Tallinn Manual 2.0, 2017, 169 (arguing that ‘cyber espionage itself, that is, the collection of information vital to the protection of the State, does not breach international law irrespective of whether it is conducted for economic purposes or for more traditional military/political purposes’).
practice or opinio juris toward a customary rule prohibiting its extraterritorial commission.

Notably, the U.S. Department of Defense has made precisely this argument:

Of course, most countries, including the United States, have domestic laws against espionage, but international law, in our view, does not prohibit espionage per se even when it involves some degree of physical or virtual intrusion into foreign territory. There is no anti-espionage treaty, and there are many concrete examples of States practicing it, indicating the absence of a customary international law norm against it.136

The DoD argument assumes that extraterritorial espionage is lawful as long as there is no specific customary rule prohibiting it. But that assumption is based on the second Lotus principle, which applies only to legislative and adjudicative jurisdiction:

Far from laying down a general prohibition to the effect that States may not extend the application of their laws and the jurisdiction of their courts to persons, property and acts outside their territory, it leaves them in this respect a wide measure of discretion, which is only limited in certain cases by prohibitive rules; as regards other cases, every State remains free to adopt the principles which it regards as best and most suitable.137

As the quote makes clear, the second Lotus principle is that states are free to apply their laws to acts committed outside of their territory unless a rule of customary international law specifically prohibits them from doing so. That principle, however, does not extend to extraterritorial enforcement jurisdiction – where a state exercises power on the territory of another state. That is the domain of the first Lotus principle, which (again) provides that ‘the first and foremost restriction imposed by international law upon a State is that – failing the existence of a permissive rule

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rule to the contrary – it may not exercise its power in any form in the territory of another State. In this sense jurisdiction is certainly territorial. 138

It is self-evident that, like remote cyber operations more generally, remote cyber espionage represents ‘the exercise of power’ on the territory of another state. After all, remote cyber espionage is simply a type of remote low-intensity cyber operation, one distinguished from other types – particularly law-enforcement – solely by its purpose. In terms of territorial sovereignty, that is a distinction without a difference. 139 We have already seen that states, scholars, and even the IGE agree that sovereignty categorically prohibits extraterritorial law-enforcement in the absence of the territorial state’s consent. States are thus equally prohibited from committing espionage on the territory of another state ‘except by virtue of a permissive rule derived from international custom or from a convention’, 140 and no such permissive rule exists.

138. Ibid., 18-19.
139. See, e.g., Wrange, “Intervention in National,” 2014, 320 (noting that nothing in international law suggests ‘measures undertaken for security and intelligence purposes should be treated differently from measures undertaken to punish and prevent crime’).
The pure-sovereigntist position, in short, has a stronger foundation in general international law than either sovereignty as a principle or relative sovereignty. Fidelity to international law thus suggests that Denmark should adopt the pure sovereignty approach to low-intensity cyber operations, joining fellow European states such as France and Switzerland.

That said, because a number of states endorse relative sovereignty (including traditional Danish allies like Norway, Finland, and the US), it is important to consider which position – sovereignty as a principle, pure sovereignty, or relative sovereignty – makes the most sense for Denmark from a policy perspective. As this section demonstrates, a variety of policy considerations support pure sovereignty as well.

6.1. Sovereignty as a Principle

The ‘sovereignty as a principle’ position defended by the UK and until recently by the US clearly maximises the legal right of states to engage in low-intensity cyber operations. Simply put, if sovereignty does not apply in cyberspace as a rule, states are free to conduct any low-intensity cyber operation without fear of the targeted state engaging in countermeasures.\(^{141}\) As discussed earlier, states are entitled to engage in countermeasures only in response to internationally wrongful acts.

To be sure, the unavailability of countermeasures would not leave a state targeted by a low-intensity cyber operation powerless to defend

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itself. The targeted state would be free to engage in a retaliatory low-intensity cyber operation of its own. That freedom, however, is not an adequate substitute for the legal right to engage in countermeasures. Not all states (indeed, relatively few) have the technological ability to respond to a low-intensity cyber operation with a counter-low-intensity cyber operation. For states that do not, the freedom to engage in such operations would be illusory: they would simply have to tolerate low-intensity cyber operations on their territory; even when those operations caused physical damage or rendered cyberinfrastructure inoperable. International law would only prohibit other states from engaging in (rare) cyber operations that rose to the level of a prohibited intervention or use of force.

This is why countermeasures are so important for less powerful states: they do not have to be in kind. A state targeted by a low-intensity cyber operation that violates its sovereignty does not have to respond with its own cyber operation; it can engage in any proportionate response to that internationally wrongful act, such as by ‘denying the state launching [the cyber operation] overflight or landing rights provided for in a respective treaty.’ The availability of countermeasures thus ensures that each and every state, no matter its technological capabilities, has both the right and the ability to defend itself against an unlawful cyber operation.

From a policy perspective, then, sovereignty as a principle is attractive only for states that want the legal right to engage in offensive low-intensity cyber operations and have the technological capability to defend themselves against such operations with low-intensity cyber operations of their own. For less technologically sophisticated states or states that are simply in favour of greater regulation of cyberspace by international law, that position makes little sense. It is thus not surprising that so few states have endorsed the sovereignty-as-a-principle position; or that some states, including Finland, have specifically condemned it.

142. As noted earlier, data compiled by the Council on Foreign Relations indicates that only 34 states have engaged in low-intensity cyber operations over the past 16 years. See Council on Foreign Relations, “CFR Tracker.”
145. See Finland, Ministry of Foreign Affairs, ”International Law and Cyberspace,” 2020, 3 (‘Agreeing that a hostile cyber operation below the threshold of prohibited intervention
It is also worth noting that even technologically sophisticated states have reason to endorse sovereignty as a rule. The first reason is reputational: ‘[s]tates that do not intend to conduct offensive cyber operations or see themselves as likely victims will understandably perceive the approach as threatening, particularly if espoused by states wielding substantial cyber capability’.

The second reason is more pragmatic. Advocates of sovereignty as a principle often invoke the need for states like the US to be able to engage in law-enforcement and counterterrorism on the territory of hostile states without fear of lawful countermeasures. Leaving low-intensity cyber operations unregulated by international law, however, empowers all states with offensive capability to engage in extraterritorial low-intensity cyber operations under the guise of fighting ‘terrorism’ – not just those who will ostensibly use their power wisely. China and Russia are the most obvious examples here.

6.2. Sovereignty as a Rule

Every state, in short, has an interest in promoting the idea that sovereignty applies in cyberspace as a rule, not as a principle. The question is which position they should endorse: pure sovereignty or relative sovereignty. As explained earlier, because both categorically prohibit low-intensity cyber operations that involve extraterritorial law enforcement (including counterterrorism), the critical difference between them is the legality of cyber espionage: whereas the pure-sovereignist position deems all cyber espionage a violation of sovereignty, the relative-sovereignist position permits cyber espionage as long as it does not cause physical damage or render cyberinfrastructure inoperable.

Which position to favour thus depends on whether a state wants the freedom to engage in cyber espionage. If a state does not want that cannot amount to an internationally wrongful act would leave such operations un-regulated and deprive the target State of an important opportunity to claim its rights’.


147. Schmitt and Vihul, “Sovereignty in Cyberspace,” 2017, 217. This is not to say that voluntary norms of state behaviour of the kind endorsed by the GGE in its Final Report have no utility. Such norms, however, are unlikely to influence the behaviour of states that view offensive low-intensity cyber operations as an integral part of their overall cyber strategy.
freedom – whether out of principle or (more likely) because it lacks the technological ability – pure sovereignty is obviously the more desirable position: any act of cyber espionage will be an internationally wrongful act that entitles the state to respond with proportionate countermeasures. The pure-sovereigntist position maximizes the ability of a state to defend itself against cyber espionage – and likely helps deter cyber espionage in general, because would-be perpetrator states will have no ‘grey zone’ concerning the legality of a particular operation to exploit.148

For the same reasons, a state that wants to engage in cyber espionage and has the requisite technological ability should prefer the relative-sovereigntist position. That position would permit the state to engage in cyber espionage as long as it was not harmful. And although the state would lose the right to engage in countermeasures against non-harmful cyber espionage that targeted its computer systems, it would still have the freedom to respond to such cyber espionage with low-intensity cyber operations of its own.

The relative-sovereigntist position would seem particularly attractive for technologically sophisticated states that respect international law. Those states would presumably be uninterested in engaging in cyber espionage that causes physical damage to the territorial state or renders its cyberinfrastructure inoperable. Their interest would lie in non-harmful forms of cyber espionage, such as the NSA surveillance revealed by WikiLeaks: monitoring communications, exfiltrating information, deleting or amending data. For them, relative sovereignty would appear to strike the perfect balance between offence and defence; neither too restrictive nor too permissive.149

That said, even states with the ability to engage in cyber espionage have reason to prefer an international legal regime that categorically pro-

148. See Michael N. Schmitt, “Grey Zones in the International Law of Cyberspace,” Yale Journal of International Law Online 42, no. 2 (2017): 21 (‘Certitude that a cyber operation can risk consequences at a set level can deter the taking of that operation, because the State concerned cannot act in the hope that the target State will hesitate to respond out of concern that its response might be viewed as unlawful’).

149. See, e.g., Moynihan, “The Application,” 2020, 23 (‘An approach based on quantitative and/or qualitative effects in the target state, or some other form of de minimis threshold, is attractive from a practical and pragmatic point of view as it enables states to take action in relation to cyber intrusions that may not reach the threshold of intervention but that nevertheless cause harmful effects within the territory’).
hibits, and thus helps deter, such espionage even when it is not harmful. Simply put, many types of ‘harmless’ cyber espionage – both public and private – pose a threat to even the most powerful and technologically sophisticated states.

This is most obvious in terms of espionage against corporations. It is uncontroversial that a state’s territorial sovereignty extends to both private and public cyberinfrastructure,¹⁵⁰ and there may well be acts of cyber espionage that satisfy the relative-sovereigntist position by causing significant harm to private cyberinfrastructure.¹⁵¹ Most private cyber espionage, however, will not cause physical damage or the equivalent loss of cyberinfrastructure functionality.¹⁵² China’s theft of intellectual property from Lockheed-Martin in 2009 and Google in 2010 are examples,¹⁵³ as is the notorious Flame virus, believed to be the work of the US and Israel, which targeted Iranian oil companies and had the ability to ‘activate computer microphones and cameras, log keyboard strokes, take screen shots, extract geolocation from images, and send and receive commands and data through Bluetooth wireless technology.’¹⁵⁴ The pure-sovereigntist position would deem all of these acts of private cyber espionage internationally wrongful simply because they involved non-consensually penetrating computer systems located on another state’s territory. But they would be entirely lawful under the relative-sovereigntist position because they did not harm the computer systems from which the information was exfiltrated.

¹⁵⁰. See, e.g., Schmitt (ed.), Tallinn Manual 2.0, 2017, 13-14 (‘With respect to a State’s internal sovereignty, it is irrelevant as a matter of international law whether the cyber infrastructure in question is public or private in character, or whether the cyber activities concerned are engaged in by the State’s organs or by private individuals or entities’).

¹⁵¹. An example is the Shamoon 1 malware attack on Saudi Aramco, widely attributed to Iran, which wiped out the memory of at least 30,000 computers. Not only was Saudi Aramco’s entire computer network inoperable for 10 days, the corporation needed months to replace all of the affected computers. Efrony and Shany, “A Rule Book,” 2018, 621.


Private cyber espionage is extraordinarily costly, and it seems safe to assume that law-abiding states are far less likely to engage in it than lawless ones. Law-abiding states thus have little incentive to accept a conception of sovereignty that does not deem private cyber espionage internationally wrongful and prohibits them from taking countermeasures against the responsible state. Yet that is precisely what the relative-sovereignist position does.

The policy calculus is more complicated for public cyber espionage, because the relative-sovereignist position prohibits low-intensity cyber operations that interfere with or usurp inherently governmental functions regardless of whether they cause harm. A number of states claim the exclusive right to regulate cyber activity that takes place on their territory, including China, Finland, Germany, and the Netherlands. If states have that exclusive right (what is often referred to as ‘cyber sovereignty’), it is difficult to understand how any act of cyber espionage does not interfere with a state’s governmental exclusivity. By

156. China, Department of Arms Control, “International Strategy of Cooperation on Cyberspace,” Xinhuanet.com (1 March 2017): 2, available at http://www.xinhuanet.com/english/china/2017-03/01/c_136094371.htm (‘National governments are entitled to administer cyberspace in accordance with law. They exercise jurisdiction over ICT infrastructure, resources and activities within their territories, and are entitled to protect their ICT systems and resources from threat, disruption, attack and destruction … National governments are entitled to enact public policies, laws and regulations with no foreign interference’).
157. Finland, Ministry of Foreign Affairs, “International Law and Cyberspace,” 2020, 1 (‘While cyberspace as a whole cannot be subject to appropriation by any State, each State has jurisdiction over the cyber infrastructure and the persons engaged in cyber activities within its territory. Sovereignty confers each State the exclusive right to exercise the functions of a State within a certain territory’).
158. Germany, The Federal Government, “On the Application,” 2021, 3 (‘Within its borders, a State has the exclusive right – within the framework of international law – to fully exercise its authority, which includes the protection of cyber activities, persons engaging therein as well as cyber infrastructures in the territory of a State against cyber and non-cyber-related interferences attributable to foreign States’).
159. The Netherlands, Ministry of Foreign Affairs, “Letter of 5 July,” 2019, 2 (‘States have exclusive authority over the physical, human and immaterial (logical or software-related) aspects of cyberspace within their territory. Within their territory they may, for example, set rules concerning the technical specifications of mobile networks, cybersecurity and resilience against cyberattacks, take measures to combat cybercrime, and enforce the law with a view to protecting the confidentiality of personal data’).
6.2. Sovereignty as a Rule

definition, cyber espionage makes it more difficult for a state to ensure that only legally authorized cyberactivity takes place on its territory.\(^{160}\)

The conclusion that relative sovereignty prohibits all public cyber espionage is complicated, however, by the Tallinn Manual 2.0’s extremely restrictive approach to ‘interference’. According to a majority of the IGE, the exfiltration of information from a government computer system can never qualify as interference – not even when the loss of the information is capable of crippling an inherently governmental function like national security, such as the theft of nuclear launch codes.\(^{161}\) If the Manual’s approach to interfering with an inherently governmental function becomes generally accepted by states, the relative-sovereigntist position would permit a great deal of public-cyber espionage. Consider, for example, the US’s ‘Cyber Pearl Harbor’, in which China allegedly stole the personal data of millions of past and present US government employees. That cyber espionage would not violate the Tallin Manual 2.0’s approach to governmental exclusivity, because it was limited to the exfiltration of information from the Office of Personnel Management.

States defending the relative-sovereigntist position have not explained why they are willing to tolerate public cyber espionage. Some, like France, might be able to compensate for the unavailability of countermeasures in such situations by responding with a low-intensity cyber operation of their own. Once critical information is stolen through espionage, however, counter-espionage cannot ‘unsteal’ it. All the targeted state can do is punish the responsible state, hoping to deter it from engaging in similar acts in the future.

That potential response might be sufficient to justify relative sovereignty if the threat of retaliation would be more likely to deter public cyber espionage than the threat of countermeasures. But that is almost certainly not the case. A cyber operation launched in response to lawful public cyber espionage would have to remain within the limits imposed

160. Such cyber sovereignty obviously carries with it significant risk of human-rights abuse – regarding privacy, freedom of expression, etc. The exercise of cyber sovereignty is, however, always limited by prohibitive rules of international law. See Schmitt (ed.), Tallinn Manual 2.0, 2017, 14 (noting that although ‘a State may regulate the cyber activities of those on its territory, including both natural and legal persons ... State censorship of, or restrictions on, online communications and activities are subject to applicable international human rights law’).

161. Ibid., 171.
by international law. That means the operation could not involve a use of force against the targeted state, could not intervene in the targeted state’s internal affairs, could not damage or render inoperable the targeted state’s cyberinfrastructure, and could not usurp or interfere with the targeted state’s inherently governmental functions. The deterrent value created by the threat of such retaliation would likely be limited – particularly in contrast to the threat of countermeasures, which could involve any proportionate response to the public cyber espionage, including responses in the physical world.

Moreover, few states have Germany’s cyber capabilities. For states that cannot credibly threaten cyber retaliation, the relative-sovereigntist position removes the one deterrent and the one potentially effective response they have against cyber espionage. They must simply accept non-harmful cyber espionage, public and private. Indeed, they must accept it even when non-harmful cyber espionage has the potential to become extremely damaging later on – such as Operation Nitro Zeus, which involved ‘the US penetrating deeply into Iran’s infrastructure before the 2015 nuclear accord [and] placing digital “implants” in systems that would enable it to bring down power grids, command-and-control systems and other infrastructure in case a conflict broke out.’162 According to the relative-sovereigntist position, Iran had no right to engage in countermeasures unless and until the US decided to activate the digital implants and actually caused physical damage or equivalent loss of cyberinfrastructure functionality. That is a problematic limitation,163 akin to prohibiting the police from arresting a suspect who is pointing a gun at someone until he pulls the trigger.

163. Cf. Roguski, “Violations of Territorial Sovereignty,” 2020, 76 (noting that ‘this freedom to act ... in effect create[s] a freedom to install malware on foreign computer systems’).
Since the release of the Tallinn Manual 2.0 in 2017, more than a dozen states have taken a public position on how sovereignty applies in cyberspace. One state, the UK, claims that sovereignty functions solely as a principle, thereby deeming all low-intensity cyber operations lawful. All of the other states agree that sovereignty applies in cyberspace as a rule, but they are divided between pure sovereignists, who believe that sovereignty prohibits all low-intensity cyber operations, and relative sovereignists, who believe that sovereignty prohibits only low-intensity cyber operations that cause some kind of harm to the territorial state. Those differences matter, because low-intensity cyber operations are by far the most common type of cyber operation and international law permits a state to engage in countermeasures only in response to internationally wrongful acts.

Despite the legal and practical importance of the issue, Denmark has yet to take a position on how sovereignty applies in cyberspace. This report thus concludes by answering two questions. The first is which position on sovereignty Denmark should adopt. The second is whether it is in Denmark’s interest to issue a public statement announcing its position.

7.1. Denmark’s Position

Denmark’s decision concerning which position on sovereignty to adopt should be informed both by law and policy.
7.1.1. Sovereignty as a Principle

Of the three positions, sovereignty as a principle is the most difficult to reconcile with black-letter international law. It is uncontroversial, even for the UK, that sovereignty is a primary rule of international law that protects a state’s territory from physical intrusion. The only difficult issue is whether that primary rule applies in cyberspace as well – and as we have seen, the ICJ’s approach to nuclear weapons and the widespread state acceptance of IHL’s applicability in cyberspace make it difficult to defend the UK position. It is thus hardly surprising that more than two dozen states reject the idea that sovereignty functions in cyberspace as nothing more than a principle – including the US as of May 2021.

The ‘sovereignty as a principle’ position should also hold little appeal to Denmark as a matter of policy. Because the position views all low-intensity cyber operations as lawful, it makes sense only for states that want to make offensive use of such operations and are willing to accept having no legal right to take countermeasures in response to low-intensity cyber operations that target them – not even espionage.

Denmark has had the ability to engage in offensive cyber operations since the end of 2019, but it is clear from its 2018-2023 Cyber and Information Security Strategy (CISS) that it is primarily concerned with defending itself against cyber threats. CISS’s emphasis on defence makes sense, because Denmark’s status as ‘one of the most digitized countries in the world’ – public sector and private sector alike – makes it a rich target for cyber espionage. Indeed, the Centre for Cyber Security’s 2020 report assesses that threat as ‘very high’:

Danish public authorities and private companies will highly likely become targets of attempted cyber espionage over the next two years. Denmark is the target of both politically and commercially motivated cyber

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166. Ibid.
espionage by foreign states. The threat from cyber espionage is persistent. It is particularly directed at Danish public authorities involved in foreign and security policy, and Danish private companies whose knowledge is of interest to foreign states.  

Denmark’s emphasis on protecting its public and private sectors against cyber threats suggests that its position on sovereignty in cyberspace should be based primarily on considerations of deterrence. Information stolen through cyber espionage cannot be ‘unstolen’, so the only effective counter-espionage strategy is to deter other states from engaging in cyber espionage in the first place. Empirical research has shown, perhaps counterintuitively, that the likelihood of a state suffering a cyberattack is not correlated with the security of its cyberinfrastructure. This means that a state must be more proactive in deterring threats from other states; and as we have seen, the threat of countermeasures will almost always have greater deterrent value than the threat of a counter-cyber operation, especially for a state like Denmark whose offensive capacity is relatively undeveloped. Denmark thus has little to gain by adopting a view of how sovereignty applies in cyberspace that takes countermeasures completely off the table.

The other relevant policy consideration is whether Denmark wants to maintain the right to use low-intensity cyber operations to combat transnational crime, whether organised or terrorism-related. Both pure and relative sovereignty categorically prohibit law-enforcement operations that take place without the territorial’s consent. Only the UK position permits it.

A complete analysis of the threat transnational crime poses to Denmark is beyond the scope of this report. No matter how serious that threat, however, there is no indication that Denmark would not be able to obtain the cooperation it needed to conduct extraterritorial law-enforcement effectively. With the exception of a small number of hostile

states (e.g., Russia, China, Syria), most states would likely consent to Denmark accessing a computer on their territory to obtain incriminating evidence or remove terrorist information. Indeed, if that was not the case, other small European states (e.g., Finland, Switzerland) would almost certainly have rejected the idea that sovereignty functions in cyberspace as a rule. Yet those similarly-situated states have adopted either relative sovereignty (Finland) or pure sovereignty (Switzerland) instead of the ‘sovereignty as a principle’ position.

7.1.2. Pure Sovereignty vs. Relative Sovereignty

Both law and policy, then, suggest that Denmark should endorse either pure sovereignty or relative sovereignty. Viewed solely through the lens of Denmark’s traditional alliances, the relative-sovereignist position is clearly more desirable, given that it has been endorsed by the only two Nordic states – Norway and Finland – that have issued public statements concerning how international law applies in cyberspace. The US has also recently endorsed relative sovereignty, and Denmark has traditionally been loath to publicly disagree with the Americans, particularly on matters of foreign policy.169

Viewed in terms of larger policy concerns, the decision between pure and relative sovereignty turns on whether Denmark wants to maintain the legal right to engage in cyber espionage even if doing so means it will not be entitled to take countermeasures against states that use cyber espionage to target it. As we have seen, the pure-sovereignist and relative-sovereignist positions agree that sovereignty categorically prohibits using low-intensity cyber operations for law enforcement; the only difference between them is that pure sovereignty prohibits all cyber espionage, while relative-sovereignty permits it as long as it does not cause physical damage or render cyberinfrastructure inoperable.

Whether Denmark wants to maintain the legal right to engage in public or private cyber espionage is difficult to assess. Nevertheless, it

169. Anders Wivel and Matthew Crandall, “Punching above Their Weight, but Why? Explaining Denmark and Estonia in the Transatlantic Relationship,” Journal of Transatlantic Studies 17 (2019): 392, 398 (noting that ‘Danish foreign policy is characterized by strong and unwavering support for the American world order and specific US policies’). There is no guarantee, of course, that a future Republican administration would not reverse course once again and endorse the sovereignty-as-a-principle position.
is worth noting that neither the Council for Foreign Relations Cyber Tracker nor the Center for Strategic & International Studies' list of significant cyber incidents identifies even one act of cyber espionage – public or private – attributed or attributable to Denmark since 2005. This suggests that Denmark is not interested in directly engaging in cyber espionage – although that may change as its offensive cyber capacity increases. Regardless, as noted above, the threat of cyber espionage against Denmark remains extremely high, giving it little reason to abandon the right to respond to cyber espionage with countermeasures.

Alliances aside, then, pure sovereignty appears superior to relative sovereignty from a policy perspective. The pure-sovereignist position would prohibit Denmark from engaging in cyber espionage – at least insofar as it wanted to comply with international law – but it would permit Denmark to respond to any act of cyber espionage by taking countermeasures against the offending state. Whether the threat of countermeasures is capable of deterring other states from engaging in cyber espionage against Denmark is, of course, an open question. But insofar as deterrence is possible, pure sovereignty will maximise it by deeming all cyber espionage unlawful. Relative sovereignty, by contrast, can only deter cyber espionage that causes harm or renders cyberinfrastructure inoperable; which is rarely the case, as noted earlier.

### 7.2. Actions by Denmark

Whether Denmark should publicly announce its position on how sovereignty applies in cyberspace is a separate question. No matter which position it decides to adopt, a public statement would run the risk of

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171. Recent reports indicate that the Danish Defence Intelligence Service actively assisted the United States in spying on Danish companies and a number of Denmark’s close European allies. That espionage, however, appears to have relied on accessing Danish internet cables with Denmark’s consent – not on accessing computer systems in the countries the NSA surveilled. See, e.g., Amelie Theussen, “Why Did Denmark Help the US Spy on Its European Allies?” The Conversation (8 June 2021), available at https://theconversation.com/why-did-denmark-help-the-us-spy-on-its-european-allies-161959. Though obviously problematic, the espionage thus does not involve the kinds of sovereignty violations discussed in this report.
alienating states with a different position: powerful European states like France if Denmark endorsed relative sovereignty; important allies like Norway, Finland, and the US if it endorsed pure sovereignty. Indeed, an interest in not being seen as taking sides on such a contested issue likely explains why some states have issued public statements concerning international law in cyberspace that are conspicuously silent on the question of sovereignty. Australia’s statement, for example, addresses every contested legal issue other than the international wrongfulness of low-intensity cyber operations.\(^{172}\)

Denmark would nevertheless benefit in at least two ways from publicly endorsing either pure or relative sovereignty. The first would be deterrence: states will not be deterred from engaging in any kind of cyber espionage unless they know that Denmark believes it is internationally wrongful and entitles Denmark to respond with countermeasures. The second benefit is more narrowly legal: Denmark can contribute to the formation of customary international law regarding the legality of low-intensity cyber operations only by making its position on that issue publicly known. Publicity is inherent in the concept of opinio juris. A desire to influence international law almost certainly explains why states as varied as the Netherlands, Brazil, and Iran have each released statements concerning how international law applies in cyberspace.

At a minimum, therefore, Denmark should follow suit and issue a public statement that makes clear whether it endorses pure or relative sovereignty in the context of low-intensity cyber operations. Moreover, if it endorses relative sovereignty, Denmark could maximise the impact of its statement by making clear – in a manner that most other relative-sovereigntist states have not – what kind of harm it considers sufficient to violate territorial sovereignty.

As noted above, both the GGE and the OEWG have each completed their work on how international law applies in cyberspace and submitted their final reports. In early 2021, however, the General Assembly

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voted to create a second OEWG that will report back to it in 2025.173 Given the important uncertainties that remain regarding the status of sovereignty, Denmark would be well advised not only to issue a public statement on the topic, but also to participate actively in OEWG II.


Bibliography


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