Cyber attacks as use of force in international relations: *ius ad bellum* and *ius in bello*

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Cyber war and outer space

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- **Satellites = critical infrastructure**

- **Tallin Manual 2.0**:
- cyber operations could be **directed against**, or **utilise**, space-related cyber infrastructure (in particular **satellites**) for such purposes as retrieving or altering data, disrupting space-to-space communications, interfering with uplink or downlink communication signals, partially or completely destroying the software or hardware on a space system, and manipulating satellite controls

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International Law

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- **UNGA** (2011) → **Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security**
- → **GGE Report (2013):**
- **International law**, and in particular the **Charter of the United Nations**, **is applicable** and is essential to maintaining peace and stability and promoting an open, secure, peaceful and accessible ICT environment

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International Law

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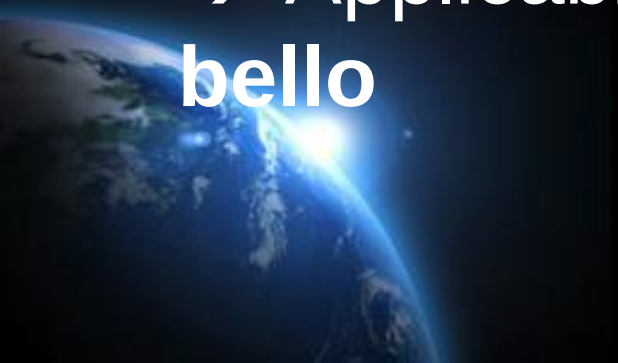
- Problem: **hardly no specific international law norms (treaty rules) dealing with cyber space** and **cyber operations**
- → **Applicability of general international law and treaties** inasmuch as they are applicable
- → Applicability of **ius ad bellum** and **ius in bello**



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Tallinn process

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- NATO Cooperative Cyber Defence Centre of Excellence (Tallinn) → International Group of Experts →
- **Tallinn Manual on the International Law applicable to Cyber Warfare** (2013)
- → new International Group of Experts →
- **Tallinn Manual 2.0 on the International Law applicable to Cyber Operations** (2017), incorporating and integrating Tallinn Manual 1.0

- The value of the Tallinn Manual

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Attack

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- A «**cyber attack»** is not necessarily an **armed attack** (*ius ad bellum*) or an **attack** under *ius in bello*
- However, nothing is certain in this field (hardly no available State practice or *opinio iuris*)
- A cyber operation that does not constitute an armed attack may be nonetheless illegal (violation of sovereignty, violation of the principle of non intervention)

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Attack

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- **US DoD Law of War Manual** (2016):

- The term "**attack**" often has been used in a colloquial sense in discussing **cyber operations** to refer to many different types of hostile or malicious cyber activities, such as the defacement of websites, network intrusions, the theft of private information, or the disruption of the provision of internet services Operations described as "cyber attacks" or "computer network attacks," therefore, are not necessarily "attacks" for the purposes of applying rules on conducting attacks during the conduct of hostilities. Similarly, operations described as "cyber attacks" or "computer network attacks" are not necessarily "armed attacks" for the purposes of triggering a State's inherent right of selfdefense under *jus ad bellum*

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Ius ad bellum

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- UN Charter, **Art. 2.4**:
- All Members shall refrain in their international relations from the threat or **use of force** against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations

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Ius ad bellum

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- Two exceptions to the ban on the use of force:
- A) use of force (authorised) by the Security Council of the UN (UN collective security system)
- B) use of force in individual or collective self-defence

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Ius ad bellum

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- UN Charter, **Art. 51**:

- Nothing in the present Charter shall impair the inherent right of individual or collective self-defence **if an armed attack occurs against a Member of the United Nations**, until the Security Council has taken measures necessary to maintain international peace and security

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Ius ad bellum

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- International Court of Justice (ICJ), *Nicaragua* v. *US* judgment (1986):

- Not all uses of force are so serious to constitute an armed attack, triggering the right of individual or collective self-defence

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Ius ad bellum

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- Different US view (DoD Manual):
- The United States has long taken the position that the inherent right of self-defense potentially applies against any illegal use of force. Thus, any cyber operation that constitutes an illegal use of force against a State potentially gives rise to a right to take necessary and proportionate action in self-defense

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Use of force

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- Tallinn Manual:
- Acts that **injure** or **kill persons** or **physically damage** or **destroy objects** are **uses of force**
- Other cases are less clear

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Armed attack

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- Tallinn Manual
- The **scale and effects** required for an act to be characterised as an armed attack necessarily exceed those qualifying the act as a use of force
- The parameters of the scale and effects criteria remain unsettled beyond the indication that they need to be grave

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Armed attack

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- Tallinn Manual:
- A cyber operation that seriously injures or kills a number of persons or that causes significant damage to, or destruction of, property would satisfy the scale and effects requirement
- But the precise threshold is unclear

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Armed attack

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- **Operation Stuxnet** (2010) → damage to Iranian nuclear centrifuges
- An armed attack? Opinions divided among experts (although all agree it was a use of force)

- A cyber incident directed against a major international stock exchange that causes the market to crash? Opinions divided
- But an «armed attack», although it may be effected by means of non traditional weapons, implies at least, if not physical damage, the impairment of functions of specific infrastructures…

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Attribution

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- With respect to cyber operations (and attacks) **attribution** to a State (or non-State actor) is the big problem

- Inter alia, it may be particularly difficult to verify whether the **acts of a non-State actor** are **attributable to a State** (see Nicaragua case and ILC Articles on State responsibility)

- Art. VI, Outer Space Treaty (OST): States are responsible for national space activities: would this imply attribution to the State of any cyber attack conducted by means of national private satellites? Doubtful…

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Self-defence

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- Armed attack by (→ self-defence against) non-State actors?

- Anticipatory self-defence (relevant in the case of cyber attack)?

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Ius in bello

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- **Additional Protocol I (AP I)**
- **Principle of distinction**
- **Art. 48**
- In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly **shall direct their operations only against military objectives**

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Ius in bello

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- **Protection of the civilian population**
- **Art. 51, AP I**
- 1. The civilian population and individual **civilians** shall enjoy general protection against dangers arising from military operations …
- 2. The civilian population as such, as well as individual **civilians**, **shall not be the object of attack**

Ius in bello

- **Art. 51, AP I**
- **Prohibition of indiscriminate attacks**
- 4. Indiscriminate attacks are prohibited. Indiscriminate attacks are … those which … are of a nature to strike military objectives and civilians or civilian objects without distinction
- 5. Among others, the following types of attacks are to be considered as indiscriminate: …
- (b) an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated [**principle of proportionality**]

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Ius in bello

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- When does a cyber operation pass the threshold of an **attack**?
- **Art. 49, AP I**
- "Attacks" means acts of violence against the adversary, whether in offence or in defence

- Tallinn Manual:
- A **cyber attack** is a cyber operation … that is reasonably expected to cause injury or death to persons or damage or destruction to objects

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Ius in bello

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- → violence = violent consequences, not limited to violent (kinetic) acts (see e.g. spread of chemical or biologocal agents)
- → psychological cyber operations or cyber espionage are not attacks
- According to Tallinn Manual (majority opinion) damage includes **interference with functionality** «if restoration of functionality requires replacement of physical components»
- According to some experts any loss of functionality would qualify as damage
- A cyber operation merely causing loss or impairment of data would not qualify as an attack → **contrasting opinions**, with regard to data essential to the wellbeing of the civilian population (ICRC position)

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Ius in bello

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- **Cyber infrastructures** are often **dual-use**
- Dual-use infrastructures are **military objectives** and can be targeted
- [Art. 52.2, AP I: Attacks shall be limited strictly to military objectives. In so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage]
- **The principle of proportionality applies**

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Outer space

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- **The same rules apply in outer space**, whether, e.g., a space object (such as a satellite) is used to conduct a cyber attack or is targeted by a cyber attack
- **OST**, Preamble
- *Recognizing* the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes (recall UNCLOS, Art. 88: «The high seas shall be reserved for peaceful purposes»)

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Outer space

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- **OST**, **Art. I**
- The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind
- **Art. III**
- States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, **in accordance with international law**, **including the Charter of the United Nations**, in the interest of maintaining international peace and security and promoting international cooperation and understanding
- → **no general ban on military activities in outer space**

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Outer space

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- OST, Art. IV
- States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner
- The **Moon** and **other celestial bodies** shall be used by all States Parties to the Treaty **exclusively for peaceful purposes**. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited