

HOW AI* AFFECTS NPT-REGIME?

AND OTHER EMERGING TECHNOLOGIES

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AI APPLICATION

AI - machine able to take independent actions in response to various stimuli

Military application

- LAWS. Lethal Autonomous Weapons Systems
- Dead Hand system
- Detection of submarines (mobile missile launchers)
- Missile & air defence
- Data analysis
- Cyber warfare

Peaceful application

- Safety & security in nuclear power plants
- IAEA safeguards?

EFFECTS OF AI APPLICATION

- Vulnerable to errors and sabotage
- Speed of action on the battlefield eclipses the speed of decision-making
- Ethical dilemmas – who takes responsibility?
- Incompliance with humanitarian law
- Precision reduces casualties
- Prospects for NPP safety & security

The current AI application is insignificant to absent and its influence on NPT framework is limited

3D-PRINTING

The additive manufacturing process can be described as creating an object from raw materials, often in microscopic powder or liquid form, where there was no object before

Relevant to the proliferation of both conventional weapons, and **weapons of mass destruction** and their delivery systems.

- Guns (not beneficial economically)
- Missiles (some components)
- Nuclear weapons (manufacturing of nuclear core requires extreme precision and are difficult to produce using traditional additive/subtractive machining and other preparation processes.)
- High explosives - possible
- Gas centrifuges – is not applied currently + maraging steel is subject to export control

3D-PRINTING

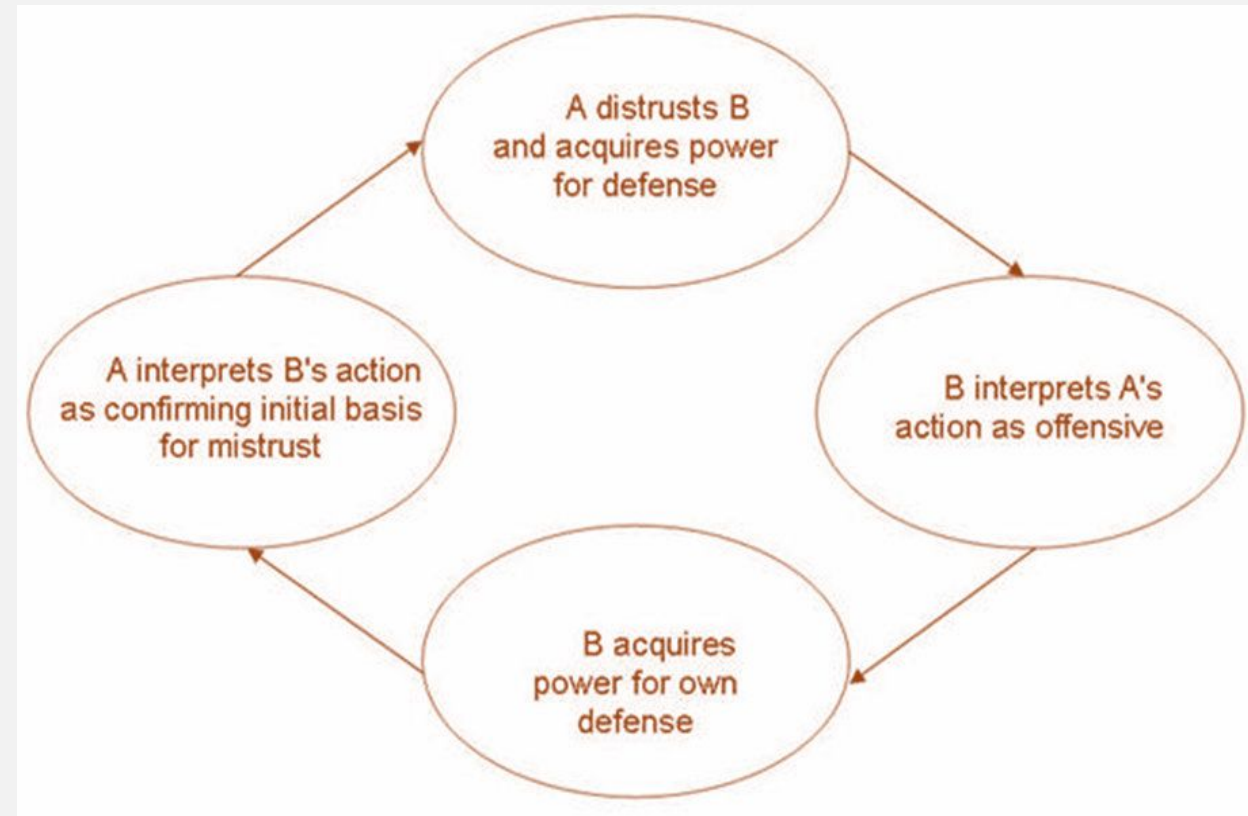
Proliferation in circumvention of export control tools

- Technical data to be downloaded to printing machines can be communicated just by email
- Emails are not tracked by export control, =>

May enable illicit weapon programmes, also nuclear

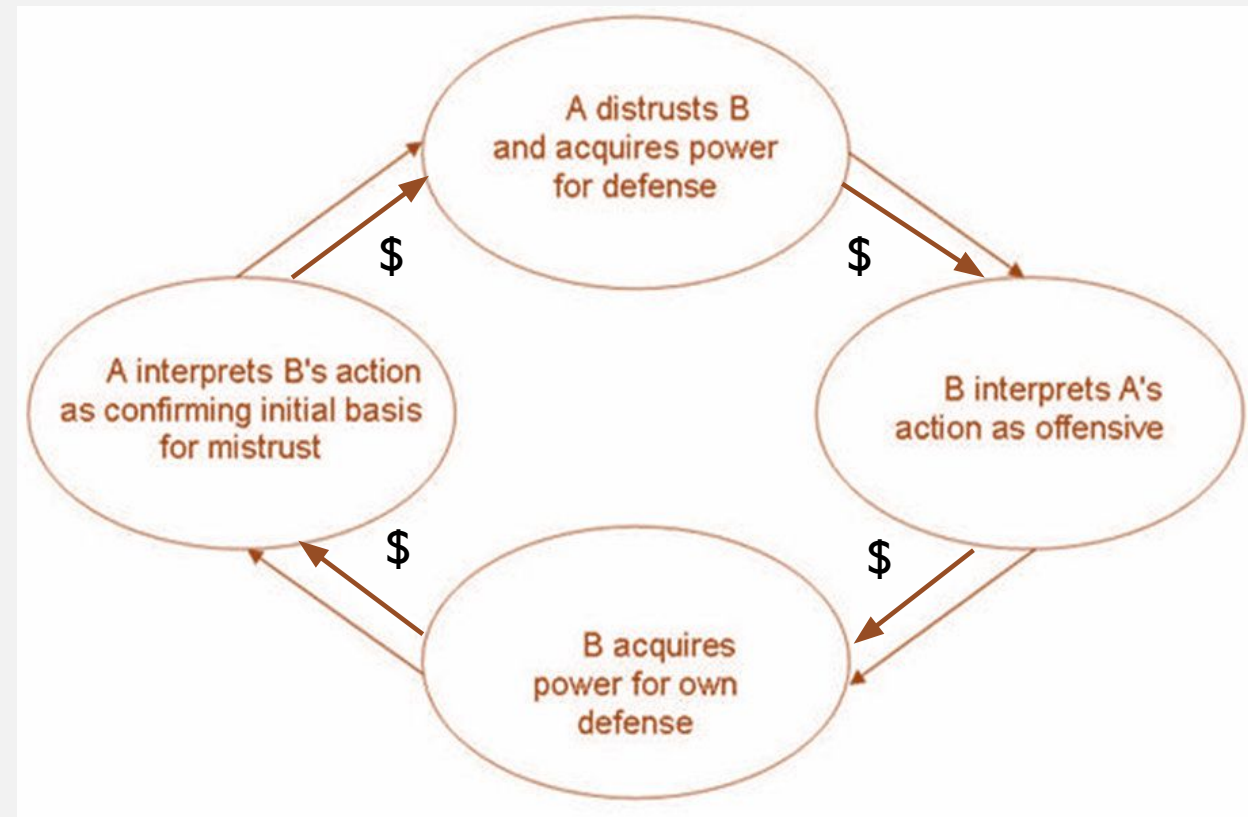
SECURITY DILEMMA

The security dilemma explains when investments in military or economic capabilities intended to make oneself more secure end up having the opposite effect by triggering competition and conflict with other nations. The crux of the problem is that the accumulation of power ends up challenging the security of other states, who respond by balancing against or even using force to mitigate the perceived threat of aggression.



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SECURITY DILEMMA

- energy and weapons programmes both draw from the same pool of nuclear technology, so it can be difficult to distinguish civilian from military investments (uncertainty contributes to worst-case scenarios)

Moderate level of indistinguishability is codified in Article II of the Non-Proliferation Treaty (NPT), which contains the core commitment not to manufacture nuclear weapons without prohibiting specific activities or technologies =>

Many dual-use technologies (uranium enrichment, shaped high explosives, additive manufacturing) fall squarely in this grey area (civilian vs military sectors) blurring the distinction between prohibited and permitted activities =>

It becomes harder for energy programmes to allay suspicions, while enabling weapons-aspirants to practice deception. This type of decrease in dual-use distinguishability tends to pull nuclear programmes into an intense security dilemma.

THANK YOU!