National Defence
Défense nationale

Canadian
Forces
College

Collège
des
Forces
Canadiennes

The Deceptive Future of Surprise in Military Operations

Major Jonathan P. Logan

Canada

CANADIAN FORCES COLLEGE - COLLÈGE DES FORCES CANADIENNES

JCSP 49 DL - PCEMI n° 49 AD
2022 - 2024

Exercise Solo Flight – Exercice Solo Flight

The Deceptive Future of Surprise in Military Operations

Major Jonathan P. Logan

THE FUTURE OF SURPRISE AND DECEPTION

> *"All warfare is based on deception. Therefore, when capable, feign incapacity; when active, inactivity…. 2254 the Enemy a bait to lure him: feign disorder and strike him… Pretend inferiority and encourage [their] arrogance."*

- Sun Tzu, The Art of War

The element of surprise and the development of Borg technology is critical to the success of the Canadian Forces. It allows for quick assimilation and integration of adversarial capabilities ensuring a constant advantage on the battlefield. Its full development could even allow for trans-warp, hyperspace jumps in the event that a Death Star eats a banana.

If the first paragraph caused you to pause for a moment, then you had a normal reaction to the introduction of an unexpected stimulus, otherwise known as surprise, a powerful tool and a principle of war in military operations.[1] Surprise in the general sense is the result is a discrepancy between what was expected, consciously or unconsciously, and what actually transpires.[2] Depending on the individual and the degree, surprise can cause a host of physiological responses ranging from laughter to incapacitation. The value of the discombobulation that surprise can produce is such that it is a principle of war[3] amongst most major military forces[4]. Given its importance, understanding the implications of evolving technological as well as societal and military trends on the achievement of surprise is critical for operational planners and leadership within the CAF and Allied Forces. Technological advancements leading to things such as the increasing ubiquity of sensors, have led some to question whether the transparent battlefield seen in Ukraine will render the use of surprise impracticable or even irrelevant in future conflicts. While a valid question, the importance of surprise will not fade. However, achieving surprise in future military conflicts will require a greater reliance on the use of operational-level military deception (MILDEC).

An examination of the literature on military surprise and deception alongside the implications of technology on future wars will demonstrate the importance of deception to surprise in the contemporary operating environment. To do so, the paper will first speak to the value of surprise in war. Having demonstrated the importance of surprise, the subsequent section of the paper will demonstrate how technological developments will inhibit the employment of the doctrinal elements used to achieve it. In light of the identified challenges, the third section will demonstrate how MILDEC, in contrast to the other elements of surprise, will remain relevant and critical to the military use of surprise.

---

[1] Canada. Department of National Defence., *CFJP 01 - Canadian Military Doctrine* (Ottawa: DND Canada, 2009), 2–4, https://publications.gc.ca/collections/collection_2010/forces/D2-252-2009-eng.pdf.

[2] Judith Gerten and Sascha Topolinski, "Shades of Surprise: Assessing Surprise as a Function of Degree of Deviance and Expectation Constraints," *Cognition* 192 (November 1, 2019): 1, https://doi.org/10.1016/j.cognition.2019.05.023.

[3] Canada. Department of National Defence., *CFJP 01 - Canadian Military Doctrine*, 2–4.

[4] Kalin Gradev, "Surprise or Instantaneity as a Principle of War," *Security and Defence Quarterly* 8, no. 3 (September 30, 2015): 131, https://doi.org/10.5604/23008741.1189427.

Having proven the importance of MILDEC in future conflicts, the paper will then discuss some of the legal and policy challenges that must be considered and prepared for before the next war.

WHO DOESN'T LOVE A GOOD SURPRISE?

Surprise is one of the Canadian Armed Forces (CAF) ten principles of war, and with good reason. When successfully employed, it can be a force exponentiator in war with the potential to "produce results out of all proportion to the effort expended, and when other factors are unfavourable may be essential to success".[5] The exponential advantage that Surprise can create is the result of the intermingling of the problem created by *the surprise* while dealing with the effects that *being surprised* has on groups and individuals. This section will further explore this synergistic effect of surprise, followed by a discussion on why the ability to employ surprise is essential for military planners and the CAF.

The Science of Surprise

Surprise isn't just a principle of war. It is an individual and social human reaction, the understanding of which is key to its eternal value to military planners. The effect of military surprise results from an individual's maladaptive physiological and the group socio-organizational response to *being surprised* combined with the unexpected military problem must now react to. At the individual level, the impacts of being surprised have documented biological responses, including delays in action, increased error rates, and a deterioration of conscious perception and memory.[6] Furthermore the performance decrements resulting from surprise are amplified when the individuals are multitasking.[7] When the surprise affects an organization, the individual effects of the surprise can be exponentially increased. As the unexpected information is processed at each level, its unexpected nature can lead to doubt and questions of accuracy, creating a feedback loop and extending the chaos longer than would otherwise be warranted. The individual and socio-organizational impacts discussed so far will vary in degree depending on the nature of the surprise, individual resilience, and preparedness, as well as the complexity and discipline of the organization. Surprise has been spoken to in a manner agnostic to its nature; that is, it has focused on *being surprised.* This aspect has been elaborated on first as it is not something that is specific to technological capabilities or even military. It is the immutable aspect of surprise which has been preached as far back as Sun Tzu. Of course *being surprised* doesn't happen on its own, something has to the trigger it, *the surprise.* The surprise is the instigating activity that the adversary had not expected. The impact of this aspect will vary far more dramatically, but its effect is also more direct and observable. In military parlance, the definition will vary, but in principle, a surprise is an

---

[5] Canada. Department of National Defence., *CFJP 01 - Canadian Military Doctrine*, 2–5.
[6] Rainer Reisenzein, Gernot Horstmann, and Achim Schützwohl, "The Cognitive-Evolutionary Model of Surprise: A Review of the Evidence," *Topics in Cognitive Science* 11, no. 1 (2019): 61, https://doi.org/10.1111/tops.12292.
[7] Reisenzein, Horstmann, and Schützwohl, 61.

action at a time or place or in a manner for which the enemy is unprepared[8] and could result in anything from a few minutes delay before returning fire; up to a capital being seized before defending forces could react The important take away is that. The effectiveness of the surprise will depend on the combination of how unexpected the attack was - *being surprise* – and how unprepared the enemy is to respond – *the surprise*. It's when they are combined that surprise is at its most powerful, and military planners must give consideration to both aspects that seize the full potential of surprise.

The Need For Surprise

The impacts of surprise in warfare are too great to be ignored. Though already part of doctrine, the emphasise on surprise has dwindled since the end of the Cold War. [9] With the US as the world's sole superpower, most conflicts involving Western powers were focused on violent extremism where there was significant technological overmatch.[10] Western conflicts over the past 25 years where most combat has been against operationally overmatched insurgency forces not capable of limiting Western forces' freedom of movement.[11] [12] With the reemergence of great power competition, however, that world is changing. Russia has invaded Ukraine, drawing NATO into a proxy war, the conflict in the GAZA threatens to spill out into a larger war, and the technological overmatch held by the US and Western forces is dwindling. The next conflict into which the CAF enters may very well be against a peer force, and CAF planners will need to draw on every advantage available to them in support of NATO or coalition efforts.

History has shown this lesson. It is full of examples of operations and tactical successes in which surprise was key. The World Wars were the last essential conflicts for the Western world, and it is no surprise that surprise played a pivotal role in so many of its major battles. It's when forces are close to parity that surprise goes from a tool to a necessity. A study undertaken by the CIA, looking at 38 military engagements between 1914 and 1967, showed that when the attacker achieved surprise, they caused 14.5 enemy casualties for every one of his own; without surprise, the casualty ratio fell to 1:1. [13]

Canada's military doctrine utilizes a manoeuvrist approach to which surprise is a major aspect. This approach seeks "to defeat enemy by shattering its moral and physical cohesion, its ability to fight as an effective coordinated whole, rather than by destroying it physically through incremental attrition"[14]. This approach, to which surprise is key

---

[8] Martinez, Kenny D., "The Challenge of Applying Tactical Deception When Conducting Large Scale Combat Operations in the 21st Century" (Technical Report, Master's Thesis, Fort Leavenworth, Kansas, U.S. Army Command and General Staff College, 2021), 14, https://apps.dtic.mil/sti/citations/AD1157380.
[9] Daniel R Richardson, "Operation FORTITUDE 2035: The Role of Deception in Future War," n.d., 1.
[10] Richardson, 1.
[11] Richardson, 2.
[12] Joshua T Christian and Edward J Gibbons, "Deception: A Necessity of Modern Warfare," n.d., 27.
[13] "Central Intelligence Agency (CIA) Research Paper: Deception Maxims: Fact and Folklore, April 1980," n.d., 6.
[14] Canada. Department of National Defence., *CFJP 01 - Canadian Military Doctrine*, 73.

element "also requires much less expenditure in money, staff and military equipment, exactly because it does not aim to wear down the enemy, but strike like a thief"[15]. Surprise has and must continue to be part of CAF approach to war, but doing so will require adaptation.

SURPRISE CHALLENGED

While the value of surprise is unquestionable, surprise is not a task or activity unto itself; rather, it is the end result of deliberate actions in support of the elements of surprise. In Canadian doctrine, there are five elements to surprise: secrecy, concealment, deception, originality, audacity and speed[16]. This section of the paper will explain each of the elements (As most do not have doctrinal definitions), and while none of the aspects are mutually exclusive of one another, they will be examined individually to to demonstrate how their effective use will be challenged by current and developing technology.

Secrecy

We will define secrecy as the ability to develop and communicate plans without allowing the enemy access to that information. Technology both enables and challenges this element. Advanced encryption techniques and the ability to communicate information across the globe could be argued to increase secrecy, but the communication chain is only as strong as its weakest link, which in this case is the human. The human link will, in fact, be further weakened by the quickly evolving use of Artificial Intelligence (AI), which will make gathering human intelligence via network even easier. AI, when paired with quantum computing, will greatly enable signal intelligence, further denying the ability to maintain secrecy.

Concealment

Whereas secrecy refers to the security of information, Concealment is protection from observation or surveillance[17] or rather the ability to hide the movement of troops and capabilities. This is perhaps the element most challenged by technology.[18] Sensors are more ubiquitous now than they have ever been and the breadth of emissions they can detect and the sensitivity with which they can do so is increasing, microsatellites, expendable persistent Intelligence Surveillance and Reconnaissance (ISR) platforms, nanosensors, and access to embedded sensors in personal, commercial, and military item and equipment will exponentially increase the types and quantity of data collected,

---

[15] Oikonomakis Panagiotis, "STRATEGIC MILITARY DECEPTION," n.d., 40.

[16] Canada. Department of National Defence., *CFJP 01 - Canadian Military Doctrine*, 26.

[17] Public Services and Procurement Canada Government of Canada, "TERMIUM Plus®," October 8, 2009, https://www.btb.termiumplus.gc.ca/tpv2alpha/alpha-eng.html?lang=eng&i=1&srchtxt=DECEPTION&codom2nd_wet=1#resultrecs.

[18] Cameron H. Malin et al., "10 - Looking Forward: Deception in the Future," in *Deception in the Digital Age* (Elsevier Inc, 2017), 242, https://doi.org/10.1016/B978-0-12-411630-6.00010-4.

making it increasingly difficult to hide equipment signatures.[19] For context, its estimated that there will be 75 billion sensor containing Internet of Things connected devices by 2025.[20] With the assistance of AI the these sensors will go beyond just detecting; they will be able to identify people and things as well. For example, in 2018, police in China, using AI-powered glasses with real-time facial recognition software, were able to identify a wanted criminal in a crowd of 60,000 at a concert.[21]

Speed

Similar to concealment, speed allows the movement of a force into a place the enemy didn't expect. However instead of concealing their movement, speed can allow the force to get into a location faster than the enemy can react. The same sensors which challenge concealment also challenge the use of speed through early detection and long-range precision capabilities, while AI-powered battle management software[22] will also improve the reaction time, making it harder to use the speed to enter their OODA loop. [23]

Originality

Through originality, it's possible to achieve surprise by presenting the adversary with an unfamiliar problem. By doing so, even once the threat is identified, they may not know how to react appropriately.

Audacity

Audacity achieves surprise because even though the enemy may be aware of the potential threat vector, they believe that the threat is unlikely because of the other considerations or risks it presents to the attacker. Technology has not limited this per se, but our societal norms, which have become more risk-averse in combat, have. Audacity walks a fine line with recklessness. Pearl Harbour and Operation BAGRATION during WW2 were both examples which utilized audacity to achieve surprise, with excellent operational effect. [24]

---

[19] Richardson, "Operation FORTITUDE 2035: The Role of Deception in Future War," 14.
[20] Richardson, 38.
[21] Richardson, 38.
[22] Kayode Sunday John Dada et al., "Adoption and Deployment of 21st Century Technologies in Armed Forces Operations," *Journal of Advances in Military Studies* 5, no. 1 (April 30, 2022): 100, https://doi.org/10.37944/jams.v5i1.135.
[23] "Carol I" National Defence University et al., "Planning Deception at the Operational Level of War," *Romanian Military Thinking* 2023, no. 3 (September 1, 2023): 24, https://doi.org/10.55535/RMT.2023.3.01.
[24] Scott Helfstein, "Backfire: Behavioral Decision Making and the Strategic Risks of Successful Surprise," *Foreign Policy Analysis* 8, no. 3 (July 1, 2012): 289, https://doi.org/10.1111/j.1743-8594.2011.00165.x.

Deception

If we can't move faster than they can sense, we can't hide our presence, and we are unwilling to accept the risk of audacity and are unable to keep all aspects of our plan secret. How can surprise still be achieved in the modern world? The answer is deception. All the other elements of surprise are focused on friendly action; how do *we* hide our forces? How do *we* secure our information? How do *we* move faster than they can react? How do *we* come up with something original? How do *we* act audaciously? Deception on its own does nothing, but it is an enabler to all the other elements; rather than focusing on what we do, the focus is on what the *enemy expects* us to do and how we influence them and the environment to ensure that we fail to meet their expectations.

DECEPTION IN THE 21ST CENTURY

Deception has long had a place in warfare and is a key aspect of the manoeuvres approach to warfare. It is a valuable tool for achieving surprise, and it can be utilized in several ways. As identified earlier, what makes deception stand out from the other aspects of surprise is its focus. Deception focuses on the enemy rather than friendly action, and it ultimately relies on understanding the enemy rather than their technologies. Deception is simple in principle- Encourage our adversary to believe something that causes them to act or fail to act in a manner beneficial to our own objectives.

Deception in Action

In Ukraine, their forces, as well as Russia's, have provided examples of Operational-level deception being used to achieve surprise. Any military planner would rather attack an unprepared adversary, and the Russian invasion of Ukraine was no different. Russia sought to invade Ukraine, quickly secure control of its lines of communication, destroy offensive capabilities, and secure the government in the capital. By doing so, they hoped to leave Ukraine with little option but to surrender and achieve a decisive victory. Having the element of surprise would support achieving these objectives with the least number of resources, resistance, and friendly casualties. Examining this example through the lens of the elements of surprise reinforces that deception was the key. To maintain secrecy, Russia compartmentalized the details of its plan, limiting those who knew the plan to the very senior ranks of its forces. However, despite their efforts, Russia failed to keep their invasion plans secret. American signals intelligence was able to intercept communications indicating that Russia planned to invade Ukraine. Given the size of the mobilization, concealment of the military build-up north of Ukraine was impossible with the ubiquity of sensors. The plan and invasion were certainly audacious, and despite years of posturing, many nations did not believe Russia would invade Ukraine. Along with audacity, Russia attempted to use speed to its advantage but given the complexity of the operation and the fact that they kept the plan from the soldiers acting, the attempt at speed

ultimately detracted from the operation. Deception, however, was successful, and though Russia failed to achieve its objectives during the initial invasion, it succeeded in achieving surprise. In preparation for the attack, Russia told Ukraine, the world and even its own soldiers that what might appear to be the mounting of an invasion force was simply a training exercise. In support of this, they pointed to similar exercises it had done in the past, and they limited the knowledge of the true plan to as few people as possible. As mentioned earlier, unlike the other elements of surprise, deception is based more on understanding the opponent's view and psyche. In this case, the world did not want to believe that Russia would invade. So strong was the desire to believe this that despite the US publicly announcing that it had intercepted Russian communication indicating that an attack was imminent, the World and, more importantly, Ukraine was still surprised when the invasion began. Russia's deception reinforced what Ukraine wanted to believe was true causing them to dismiss evidence to the contrary which Russia was unable to keep secret. Russia failed, however, to follow up on the surprise successfully, in large part due to their attempt at secrecy. The complexity of the operation was nearly impossible to execute given the lack of preparation (that resulted from their attempt to maintain secrecy). This, in turn, prevented them from acting with speed. Russia achieved surprise through their deception effort by reinforcing what the West wanted to believe but failed to translate it into tactical success in large part due to a failed attempt at secrecy.

Techno-Deception

As seen in the last section, even in the face of all the modern technology that the world could throw at them, Russia was still able to achieve surprise by utilizing deception. In fact, not only is deception not as impeded by technology as some of the other elements of surprise, but it is also enabled by it. Project MAVEN is an AI based project designed to utilize AI to analyze the massive amounts of data collected across domains, the real time analysis it could theoretically provide a tremendous advantage and allow forces to react to potential surprises faster than an adversary could enact them.[25] This is one example of AI being integrated into warfare, but they countless projects under around the world each threating to temporarily turn the tide one way or the other. However, despite the promise of AI, it will be a long time before it is fully trusted. In other words, doubt remains, and where it doubts deception is possible. AI for example suffers from the *black box* problem, which refers to the fact that we don't know how the AI get from point a to point b in its analysis, because of this hard to know if the data has been compromised, which is a real possibility, but even the threat of possible compromise can be enough.[26] AI is not alone in this regard; the more layers there are between the sensor and the human, the more opportunities there are to manipulate or spoof the information the human receives. This manipulation or even the appearance of manipulation can deceive adversaries into making decisions that can enable friendly forces to surprise them. As the saying goes garbage in garbage out.

---

[25] Zachary Davis, "Artificial Intelligence on the Battlefield: Implications for Deterrence and Surprise," *Prism : A Journal of the Center for Complex Operations* 8, no. 2 (October 2019): 118.
[26] Davis, 122.

THE DECEPTIVE CHALLENGE

Deception will be the dominant mode of achieving surprise in future operations. While this is easy to say in military circles, it presents significant challenges for Canada and allies in practice because untruthfulness is not something that Canada is comfortable with, especially when it comes to our own citizens. Within the CAF, attempts to delineate the information environment have been made to avoid situations where the military could be seen as attempting to influence or deceive its own population by delineating a public IE and an operational IE[27]. The logic however is flawed as there is no way to separate the two. The use of deception abroad particularly at the operational level will lead to ethical quandaries at home. One option put forward was creating a separate set of ethical rules for the IE relative to constraints that affect the remainder of military options.[28] At present, the US and Canada are prohibited under NORAD from the use of offensive electronic attacks, offensive cyber, psychological operations (PSYOPS), or military deception (MILDEC) with audiences or *outcomes* with either country.[29] These issues may have solutions, but they need to be discussed before and not during a crisis. Deception involves deliberately misleading the opponent, but in the era of social media, cell phones, and OSINT, it's not realistic at the operational level to expect to be able to deceive the enemy without also deceiving one's own public to some degree.[30]

CONCLUSION

Surprise is a principle of war that will be vitally important in future conflicts, but new technologies are and will continue to challenge its usage. Its achievement will remain relevant into the future, but our means of achieving it must adapt. The key to doing so will be MILDEC, which is rather than being inhibited by technology is enabled by it. The repercussions of deception need to be carefully weighed against the benefits, namely the achievement of national objectives at a lower cost of life. Despite the ethical and policy challenges, the reality remains that deception will be vital to the achievement of Surprise in future operations.

---

[27] Maj P M Doucette, "Blurred Lines: Why Influence Activities within the Canadian Armed Forces Need Their Own Code of Ethics," n.d.

[28] Doucette.

[29] Canada. Department of National Defence., *CFJP 3-10, OIE Harmonization (Draft)* (Ottawa: DND Canada, 2023), 18.

[30] Jeffrey L. Baker, "Achieving Operational Deception in the Age of CNN:" (Fort Belvoir, VA: Defense Technical Information Center, May 16, 2003), https://doi.org/10.21236/ADA425945.

BIBLIOGRAPHY

Baker, Jeffrey L. "Achieving Operational Deception in the Age of CNN:" Fort Belvoir, VA: Defense Technical Information Center, May 16, 2003. https://doi.org/10.21236/ADA425945.

Canada. Department of National Defence. *CFJP 01 - Canadian Military Doctrine*. Ottawa: DND Canada, 2009. https://publications.gc.ca/collections/collection_2010/forces/D2-252-2009-eng.pdf.

———. *CFJP 3-10, OIE Harmonization (Draft)*. Ottawa: DND Canada, 2023.

"Carol I" National Defence University, George-Ion Toroi, Cristian-Octavian Stanciu, and "Carol I" National Defence University. "Planning Deception at the Operational Level of War." *Romanian Military Thinking* 2023, no. 3 (September 1, 2023): 12–35. https://doi.org/10.55535/RMT.2023.3.01.

"Central Intelligence Agency (CIA) Research Paper: Deception Maxims: Fact and Folklore, April 1980," n.d.

Christian, Joshua T, and Edward J Gibbons. "Deception: A Necessity of Modern Warfare," n.d.

Dada, Kayode Sunday John, Jechoniah Akila, Usman Omeiza Suleiman, and Abdulrahman Akinbinu. "Adoption and Deployment of 21st Century Technologies in Armed Forces Operations." *Journal of Advances in Military Studies* 5, no. 1 (April 30, 2022): 95–107. https://doi.org/10.37944/jams.v5i1.135.

Davis, Zachary. "Artificial Intelligence on the Battlefield: Implications for Deterrence and Surprise." *Prism : A Journal of the Center for Complex Operations* 8, no. 2 (October 2019): 114–31.

Doucette, Maj P M. "Blurred Lines: Why Influence Activities within the Canadian Armed Forces Need Their Own Code of Ethics," n.d.

Gerten, Judith, and Sascha Topolinski. "Shades of Surprise: Assessing Surprise as a Function of Degree of Deviance and Expectation Constraints." *Cognition* 192 (November 1, 2019): 103986. https://doi.org/10.1016/j.cognition.2019.05.023.

Government of Canada, Public Services and Procurement Canada. "TERMIUM Plus®," October 8, 2009. https://www.btb.termiumplus.gc.ca/tpv2alpha/alpha-eng.html?

Gradev, Kalin. "Surprise or Instantaneity as a Principle of War." *Security and Defence Quarterly* 8, no. 3 (September 30, 2015): 130–48. https://doi.org/10.5604/23008741.1189427.

Helfstein, Scott. "Backfire: Behavioral Decision Making and the Strategic Risks of Successful Surprise." *Foreign Policy Analysis* 8, no. 3 (July 1, 2012): 275–92. https://doi.org/10.1111/j.1743-8594.2011.00165.x.

Malin, Cameron H., Terry Gudaitis, Thomas J. Holt, and Max Kilger. "10 - Looking Forward: Deception in the Future." In *Deception in the Digital Age*, 241–53. Elsevier Inc, 2017. https://doi.org/10.1016/B978-0-12-411630-6.00010-4.

Martinez, Kenny D. "The Challenge of Applying Tactical Deception When Conducting Large Scale Combat Operations in the 21st Century." Technical Report, Master's Thesis, U.S. Army Command and General Staff College, 2021. https://apps.dtic.mil/sti/citations/AD1157380.

Panagiotis, Oikonomakis. "Strategic Military Deception," n.d.

Reisenzein, Rainer, Gernot Horstmann, and Achim Schützwohl. "The Cognitive-Evolutionary Model of Surprise: A Review of the Evidence." *Topics in Cognitive Science* 11, no. 1 (2019): 50–74. https://doi.org/10.1111/tops.12292.

Richardson, Daniel R. "Operation FORTITUDE 2035: The Role of Deception in Future War," n.d.