WOULD ARTIFICAL INTELLIGENCE MAKE STRATEGY 'LESS HUMAN'?

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Abstract

This article discusses the influence of artificial intelligence (AI)—specifically *Narrow AI*—in the formulation of strategy arguing that there is not a straightforward answer to the question posited in the title. The Impact of *Narrow AI* in strategic decision-making will not fundamentally alter the nature of strategy due to the impossibility to program human faculties such as rationality and intentionality. Notwithstanding, the article concludes that ethical issues in the global environment will sustain the basis of strategy primarily as a human and political activity for the foreseeable future. Firstly, this piece reviews overarching definitions. Secondly, it discusses how *Narrow AI* affects strategy's formulation through the predictive power already developed; three illustrative examples substantiate the elaboration. Thirdly, it discusses how ethical factors limit *Narrow AI*'s influence at the core of strategy so that it remains a human activity first and foremost. Discussions related to tactical applications of AI—for example, drones—are out of the scope of this analysis.

Introduction

Hollywood portrays Artificial Intelligence (AI) as capable of threatening humankind's survival, if not of redefining society in every regard at the very least. For instance, following the narrative posited in the movie *Ex-Machina* (Garland, 2014), Ava—a humanoid unit of Super AI developed by the company Blue Book—confuses the programmer attempting to assess her to the point of limerence, managing to deceive him, murders her creator, and heads straight to Blue Book headquarters presumably to take control of everything; 'heartless,' conniving, and overpowering. While this cinematographic narrative is not so fanciful, its materialization still gets lost in imagination; fears of Artificial Intelligence dominating humankind would remain unfounded for a long while. Artificial Intelligence develops within two large avenues. Firstly, Modular-AI, often referred to as *Modular* or *Narrow*, and in this article defined as Narrow Artificial Intelligence (*Narrow AI* hereafter), is a type of unit that performs specific tasks some of which already influence the basis of strategy. Secondly, General-AI or Artificial General Intelligence, a type of unit expected to surpass the performance of human intelligence into Super-AI (Advani, 2021). This paper

limits its scope to present capabilities, *Narrow AI*, since General and Super AI are not yet fielded; the former remains a theoretical concept and the latter, "almost… science-fiction" (Advani, 2021, p. 25).

Max Tegmark's definition of Artificial Intelligence overarches this analysis; a "non-biological intelligence" (Tegmark, 2017, p. 55), framed within intelligence's definition as the "ability to accomplish complex goals" (Tegmark, 2017, p. 71). This approach accommodates diverse tasks ranging from self-awareness to problem-solving, while disarticulating the human monopoly of intelligence without closing the main gap between human and artificial intelligences stated by AI theorists, that *Narrow AI* lacks body and emotions (Payne, 2018), discussed later. This defines *Narrow AI* as different to human intelligence, the first cannot emulate the second. The precision is relevant because, on one hand emotions enable humans to display "emotional reasoning," (Ayoub & Payne, 2016, p.798) facilitating the interplay of memories with present affect, and molding risk tolerance (Ayoub & Payne, 2016). On the other hand, cognition is embodied through the human architecture (Payne, 2018), which is – still – the referent object and the agent of strategy inside and outside the battlefield, not least it provides valuable contextual information used to adjust offensive and defensive strategies, before and during operations.

The interweaving of cognition and strategy raises the relevance of that distinction and facilitates *Narrow AI*'s impact, despite said limitations. *Narrow AI* units learn specific tasks in two ways. One is Machine Learning (ML), within which the units' algorithms complete one—and only one—task by relentlessly exercising different pathways, adjusting actions, and perfecting its performance without altering the architecture of its hosting unit, neither software nor hardware. ML cannot manage, however, hurled evidence; it demands data in consistent format, pre-defined, and recognizable. The other one is Deep Learning (DL), in which the unit learns to classify data, infer, predict results, recognize patterns—even damaged or incomplete ones—and can make sense of conflicting, hurled data since it uses Artificial Neural Networks (Neural AI). Neural AI are individual units that can process one thing at a time but interconnected in large networks performing identical tasks in parallel, thus adapting more flexibly. Unlike ML, Neural AI can learn new tasks associated to the initial one, which is an expansive advantage, but cannot move onto other domains (Ayoub & Payne, 2015, p. 795). Both ML and DL are the substance of *Narrow AI*'s domain-specific impact in the formulation of strategy.

Colin Gray's definition of strategy dominates security, defense, and statecraft doctrines, "the bridge that purposefully should connect means with ends," adding

that strategy serves policy (Gray, 2010, p. 43) through a decision-making process, at the service of the group's benefit. Definition's argument can extend as strategy serving statecraft and, ideally, serving citizens' interests, circumscribing it to instrumental decision-making. Kenneth Payne discusses strategy in terms of psychology and evolution, from prehistory to the future, the "purposeful use of violence for political ends" (Payne, 2018, p. 28). The political nature highlights a link between decision-making, cognition, and group survival. The purposefulness serving the group (Payne, 2018), collaborative pursuit of shared goals while managing conflict with other groups (Payne, 2018)—common between both authors—legitimizes violence in the pursuit of survival and means of security (Payne, 2018). This is the motivation of our strategic intelligence according to Christopher Coker (Coker, 2019). Strategy uses all skills and resources to formulate a way to achieving the group's ends in any context, making it fluid, flexible, adversarial (Ayoub & Payne, 2016); exercising creativity and imagination; shaping and shaped by culture (Ayoub & Payne, 2016). This reveals cognition underlying strategy and both cultural products evolving, informing each other. Thus, if *Narrow AI* means a revolution in cognition, it impacts strategy too (Payne, 2018) in a domain-specific fashion, however (Ayoub & Payne, 2016).

Narrow AI affects the formulation of strategy with its unparalleled predictive power. As yards of measure, if humans' forecasting ability during complex situations was particularly keen, many campaigns—whether commercial or military—would have reached the expected ends. Equally supportive, the industry of tools for analysis, forecasting, and planning would have not developed as comprehensive and diverse as it has done especially post WWII, when strategy and planning trans-pollinated form warfare to business; a quick academic search using 'forecasting' as keyword could bring back more than three million documents. *Narrow AI* analyzes overwhelmingly copious quantities of data at a velocity unreachable by humans (Advani, 2021), with an impeccable management of statistical calculations. *Narrow AI* infers upon immense iterations either following a predefined output and a classified dataset with pre-specified categories, or without those by identifying patterns upon which it elaborates predictions (Ayoub & Payne, 2016). Forecasts become more meaningful as *Narrow AI* learns to optimize its results by iterating its algorithms, alongside the data its processing methods are refined to (Ayoub & Payne, 2016). Benjamin Jensen et al. call for an "algorithmic warfare," (Jensen et al., 2020, p. 527) arguing that the state which best manages its data will acquire long-term military advantage, signaling the unprecedented gain for strategic decisions that *Narrow AI*'s predictive power represents. Breadth, depth, systematicity, thoroughness, and speed characterize the organized, sequential processing of *Narrow AI*

(Ayoub & Payne, 2016), its outputs have only one tier of bias that humans transfer unintendedly when designing the algorithms—and potentially correctable. This constitutes *Narrow AI*'s unsurmountable impact in strategy formulation.

Human processing is rather susceptible to two tiers of bias, the same one from the dataset, and a second one, whether from the analysts' perception (i.e., confirmation, tunnel vision, optimism, selectiveness, amongst others), or cognition, "mental errors predictable and consistent," according to Richards Heuer (Heuer, 2020, p. 58). Also, *Narrow AI* is not prone to escalate conflicts to satisfy egos, to risk-aversion or risk-love, to dismiss opposing perspectives, or to physiological events such as emotions, stress, fatigue, or nutrition (Ayoub & Payne, 2016). Integrating *Narrow AI* in data management and analysis at the service of strategy formulation provides a sustainable advantage which unfolds more successfully under a human-machine cooperation, where machines are 'team-mates' as their capabilities are in constant expansion (Coker, 2019; Dear, 2019). The combination of two different intelligences complementing humans' shortcomings warrants the above convenience; some military bodies have explored this edge. For instance, Microworlds Analysis models war contexts with multiple simulated events under specific rules of engagement that *Narrow AI* runs iteratively at incredible speed, suggesting strategies and tactics not evident before, which enhances strategic abilities of participant officers.

Calculations of risk and success are essential in strategy formulation as well. *Narrow AI* further extends human statistical capabilities offering insights that minimize casualties based on sound probabilistic estimation conducted upon multiple parameters, at high speed, and without dismissing moving pieces (Ayoub & Payne, 2016). Lastly, Bernardcodie, a Neural AI trained in the US National Security Strategy (NSS) archive, identifies recurring topics within the past rhetoric of NSS' documents using DL pattern-recognition, weighs the repeating wording, and deep-writes strategy using probabilistic text-prediction. Bernardcodie's largest input, hitherto, is combining *Narrow AI*'s skills with humans to understand past strategy (Wicker, 2021).

Notwithstanding, *Narrow AI* cannot make up the most human part of strategy in at least two significant ways. First, the "Theory of the mind" (Payne, 2018, p. 6)—the human ability to reflect upon others' beliefs and behaviours. Conflicting sides read each others' actions aiming to accurately interpret intentions, such interpretations become a primordial input to mold the warfare exchange. This interpretive process involves the conflict parties and their shared context (Quintanilla, 2019), and is equivalent to the "Orders of Intentionality" posited by

Coker (Coker, 2019, p. 58); humans can develop and hold up to five layers of reflections—orders of intentionality—upon ideas and behaviors of one or of others. This profoundly psychological aspect of strategy consists of figuring the unfolding of each others' motivations and attitudes through the conflict, and how to influence the adversary's behavior to achieve our ends (Payne, 2018). *Narrow AI* lacks intentionality, is unable to process the subtleties of shifting attitudes, and cannot imagine an opponent's rational internal dialogue (Ayoub & Payne, 2016). The theory of the mind provides an avenue for deterrence inasmuch it entails a calculated influence on the behavior of adversaries and allies marked by the nuances of language and interpretation (Corbett & Binednagel-Sehovic, 2019), supporting the argument of *Narrow AI*'s limited influence on the basis of strategy—the purposeful connection between ends and means.

Second, *Narrow AI* lacks human architecture and correlated emotions, substantial for cognition since human biology and the instinctual motivation springing from it are a source of information from any context; all of which are then used to adjust strategy and tactics (Boden, 2016; Payne, 2018). *Narrow AI* cannot process the instability of obscure and fluctuating contexts (Ayoub & Payne, 2016), losing mastery of battlefield dynamics, which precludes it from playing a vivid and commanding role in strategy. Human forecasting may or may not win a war or a market, but can process the uncertain with short imperfect information, which *Narrow AI* cannot.

By extension, ethical consequences of decisions affecting strategy constrain *Narrow AI*'s impact to become foundational. Warfare laws, as made by humans, are profoundly anthropocentric (Asaro, 2012), and are applied upon rational discourses rather than upon the logics of informatic, precluding them from being programmable. Neural AI is far from developing ethical reflection and/or moral standing (Boden, 2016), and probability is not a way to process ethics and laws. Rules of engagement assume a human agent at the centre of the battlefield re-orienting course, shifting tactics, or re-purposing elements into either weapons or defences. The inception of autonomous weapons—weapon systems programmed to make decisions without human intervention (Ayoub & Payne, 2016)—brings ethical and legal dilemmas to field; for instance, the decision of shooting, to which strategy cannot be oblivious. The proportionality of attacks and counterattacks on the battlefield must be contemplated considering both, lives of combatants (military or not) engaged in the fight and lives of non-combatants that risk being caught in the crossfire, in terms of deciding to use lethal force (Asaro, 2012; Payne, 2021). No matter how efficient and useful *Narrow AI* may be, some theorists remark that the decision to use lethal force, the shot itself, and its consequences remain in the scope of human agents (Coker,

2019). This type of reflection and decision-making, ethical and strategic simultaneously, escapes *Narrow AI*'s capabilities not least as it relates to unpredictable battlefield contexts, but as it responds to moral life and laws (Coker, 2019). Understanding legal frameworks that are varied and overlapping between states and interstates demands concomitantly to make sense of, and to judge upon those; something already challenging for humans. *Narrow AI*'s mastery resides on its relentless obedience to commands and protocols (Walsh, 2017), supporting the argument of limited impact within the basis of strategy.

This argument becomes more relevant when considering that armed conflicts increasingly occur in urban settings, and combatants engaged are often non-state and non-military actors (resisting citizens, insurgents, terrorists, and mercenaries). Furthermore, Toby Walsh argues that Artificial Intelligence drone operations aggravate tensions and escalate irregular combats (Walsh, 2017). The cognitive ability to process issues that are 'ethically troubling' and produce strategic decisions represent a challenge beyond *Narrow AI*'s capabilities, as argued by Payne (Payne, 2021), proving *Narrow AI*'s limited influence at the basis of strategy as it cannot remain oblivious to ethical issues unfolding from strategical and tactical decisions. In addition, theorists have posited the irregular character of conflicts as characteristic of the twenty-first century (Krieg & Rickli, 2019). Increasingly, intra-state processes cross borderlines to become trans-state conflicts (Gray, 2006). Lacking theory of the mind, body, and emotions precludes a full strategic ability in the current global context where warfare and state boundaries incrementally blur, and imperfect information puzzles both humans and machines, supporting the argument of *Narrow AI*'s limited impact in the basis of strategy.

Finally, the legal system that prosecutes human rights and war crimes is as human an activity as we expect the decision of shooting in the battlefield would remain. Prosecuting war crimes relies on agents and participants intending to persuade courts and jurors based on arguments that combine reason and emotion, aiming to close gaps between intangible laws and war doctrines with specific contexts and facts. Algorithms cannot cross examine, argue, and counterargue to convince jurors with empathy and rationality, or imagine how to impart justice in a court. If so, as Peter Asaro contends, the right to due process would be undermined as the justice system is ultimately founded on human judgment (Asaro, 2012), is informed by evidential warrants, empathy, and compassion, and deeply imbued with moral and ethical considerations referring to the specific and applicable laws and regulations. Strategy must consider this legal prosecution system framing warfare, conflict, peacebuilding, and international relations as it shapes the

environment where it elapses; proving that *Narrow AI*'s impact cannot reach, least change, the basis of strategy.

Conclusion

There is not a straightforward answer as to the title statement. Outperforming humans in managing and extracting new knowledge from copious datasets at a fraction of time, with only one tier of fixable bias provides insurmountable advantages for strategy formulation. Simultaneously, the core of strategy—purposeful cognition that uses all resources available to secure the group's survival—is not fundamentally altered. Lacking emotions and human architecture is *Narrow AI*'s benefit and limitations at the same time.

While Artificial Intelligence is here to stay and is progressively deployed in many domains—particularly in cybersecurity which constitutes a new battlefield—the very basis of strategy will remain profoundly human and political. Instead, within an integrative approach where humans and machines are team-mates based on the complementary differences of their intelligences, *Narrow AI*'s predictive power provides unprecedented geopolitical advantage, enriching strategic formulation abilities in and out of the battlefield.

In addition, ethical and legal issues of the global strategic environment framing security, defence, and statecraft—warfare included—preclude the full automation of strategy through *Narrow AI*, upholding the human basis of the nature of strategy. Under that light, strategy will remain human and political for the foreseeable future in and out of the battlefield; foundational impact of Artificial Intelligence at the basis of strategy is yet to be seen.

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