“The United States federal government should substantially increase its security cooperation with the North Atlantic Treaty Organization in one or more of the following areas: artificial intelligence, biotechnology, cybersecurity.”

### Area

#### Area means the scope of an activity

#### Merriam-Webster No Date <https://www.merriam-webster.com/dictionary/area#:~:text=Definition%20of%20area,3%20%3A%20areaway>

: the surface included within a set of lines

specifically : the number of unit squares equal in measure to the surface

— see METRIC SYSTEM TABLE, WEIGHTS AND MEASURES TABLE

2: **the scope of a concept, operation, or activity** : FIELD

the whole area of foreign policy

3: AREAWAY

4: a particular extent of space or surface or one serving a special function: such as

a: a part of the surface of the body

b: a geographic region

5: a level piece of ground

6: a part of the cerebral cortex having a particular function

#### A field of activity or study

Encyclopedia Brittanica ND https://www.britannica.com/dictionary/area

**: a field of activity or study**

* The discovery has opened up new *areas* of/for research.
* The budget continues to be a major *area* of concern.
* a problem *area*

### Security Cooperation

#### Security cooperation is security assistance, combined exercises, international arms cooperation, and information sharing

\*\*\*SC = security cooperation, PN = Partner Nation

Scott 2017 [Kevin D., “Security Cooperation” 23 May 2017 <https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_20_20172305.pdf> for the Joint Chiefs of Staff”

SC encompasses all DOD **interactions, programs, and activities with foreign security forces (FSF) and their institutions to build relationships that help promote US interests**; **enable PNs to provide the US access to territory, infrastructure, information, and resources; and/or to build and apply their capacity and capabilities consistent with US defense objectives.** It includes, but is not limited to, **military engagements** with foreign defense and security establishments (including those governmental organizations that primarily perform disaster or emergency response functions), **DOD-administered security assistance** (SA) **programs, combined exercises, international armaments cooperation, and information sharing and collaboration.**

#### Building capacity means developing capabilities, integrating developed military capabilities, employing capabilities, and maintainence.

https://www.dsca.mil/50th-anniversary/institutional-capacity-building

[Institutional Capacity Building](https://instituteforsecuritygovernance.org/documents/113018911/125185574/ICB+Planning+V6.4.pdf) (ICB) programs, overseen by DSCA, encompass Security Cooperation activities that directly support U.S. ally and partner nation efforts to improve security sector governance and core management competencies necessary to effectively and responsibly achieve shared security objectives. Understanding **an ally or partner’s institutional capacity is critical to the development of a full-spectrum approach to Security Cooperation**.  A Full-Spectrum approach assists allies and partners by ensuring they have all that is necessary and sufficient to successfully perform a security role in support of shared objectives. ICB assists allies and partners in examining and addressing broader, systemic factors essential to delivering what is needed (e.g., money, things, people, ideas, decisions) to:

1. Understand requirements, **develop forces, and purchase or obtain the articles and services as required to develop, employ, and sustain required capabilities**;
2. Successfully **absorb and integrate fully developed capabilities into their existing security forces;**
3. Effectively and **responsibly employ those capabilities in the pursuit of common objectives between the U.S. and the ally or partner; and**
4. **Adequately staff, sustain, and maintain, those capabilities throughout their lifecycle and eventually retire them when appropriate**.

#### Isn’t security assistance – different agencies in the USFG.

CRS 2016 [“DOD Security Cooperation: An Overview of Authorities and Issues” 23 August 2016 https://www.everycrsreport.com/files/20160823\_R44602\_e41f79489b9b3f8686a73d6ff65b2dcb9b696ba2.pdf]

"Security assistance" and "security cooperation" are two terms that refer to U.S. activities to train, equip, and otherwise assist foreign partners. The term security assistance is a generic term used throughout the U.S. government to describe assistance provided to foreign military and security forces, regardless of the agency providing that assistance. However, **DOD uses the term security assistance to refer specifically to assistance provided under Title 22 authority, funded with monies appropriated to the State Department and managed by the Defense Security Cooperation Agency (DSCA),** an agency under the Office of the Secretary of Defense, Policy.[3](https://www.everycrsreport.com/reports/R44602.html" \l "fn3)

**DOD defines "security cooperation" as a broad set of activities undertaken by DOD to encourage and enable international partners to work with the United States to achieve strategic objectives.** Included in the definition are DOD interactions with both foreign defense and foreign nonmilitary security establishments. Security cooperation includes all DOD-administered security assistance programs that (1) build defense and security relationships that promote specific U.S. security interests, including all international armaments cooperation activities and security assistance activities; (2) develop allied and friendly military capabilities for self-defense and multinational operations; and (3) provide U.S. forces with peacetime and contingency access to host nations.[4](https://www.everycrsreport.com/reports/R44602.html" \l "fn4) According to DOD, security assistance is a subset of DOD's security cooperation portfolio.

Authority for DOD to conduct security cooperation activities is enacted in two primary places: Title 10 (Armed Forces) U.S.C. and National Defense Authorization Acts

#### 1NC - Training and Interoperability are not topical under security cooperation

Bowne ’18 [Andrew 2018 *Military Law Review,* “Defending the New Fulda Gap: Deterring Russian Aggression Against the Baltic States Through Fiscal Legislation, 226 Mil. L. Rev. 147]

Despite bipartisan criticism of the perceived lack of funding from other NATO members, the United States still recognizes that its leadership in the Alliance is vital to its own national security. 78 There are clear benefits to combined defense in terms of national security, foreign relations, and the economy, 79 placing U.S. funding of NATO at the intersection of foreign and domestic policy. While the President has constitutional authority in defense, as the Commander-in-Chief, and to enter into agreements with foreign states, 80 Congress can affect both defense and foreign affairs through its power of the purse. 81 Accordingly, this section analyzes the reflection of U.S. foreign and defense policies through Congressional authorizations and appropriations that affect the implementation of Operation Atlantic Resolve's lines of operation, particularly in increasing interoperability and improving the defense capacity of the Baltic States. 82

A. Congress's Role in Funding NATO Operations

Congress's power to authorize expenditures through legislation is instrumental in national security and foreign relations, as it determines the amount and purpose for which expenditures are authorized. 83 Because military activities and foreign assistance require expenditures of funds, the United States cannot implement its strategic goals in Eastern Europe without fiscal authority. 84 The constitutionally provided power of the purse therefore places Congress as the cornerstone of the United States' participation in NATO operations. While U.S. funding for deterring Russian aggression is complex and lacks clarity, sources of funding generally fall within three categories: service component funds, the European Reassurance/Deterrence Initiative, and security cooperation.

B. Building Better Allies through Funding Resources

1. Service Operations & Maintenance Funds

As the Unified Combatant Command with an area of responsibility covering Europe and Russia, EUCOM is tasked with managing theater requirements, to include supporting NATO operations and meeting U.S. national security objectives. 85 While EUCOM has authority over the conduct of operations within this region, it is the military services that receive direct funding from Congress through Operations and Maintenance (O&M) funds. 86 Like all Unified Combatant Commands during the budget planning phase, EUCOM is limited to providing inputs to influence the armed services, and sets priorities for funding, but Congress may appropriate different amounts and purposes than requested by the combatant commander. 87

To the extent an expense is necessary, fits within EUCOM's mission, and funds are authorized and appropriated, O&M funds are available for the expenditure, 88 unless the expense is covered by a more specific appropriation. 89 Another caveat is that the expenditure of funds must be for the primary benefit of the United States. 90 These two limitations to the use of service O&M funds obfuscate the analysis of how to fund operations in support of the NATO mission properly. First, it is unclear which agency's funds can be used. **Under the Foreign Assistance Act, the Department of State (DoS) is the agency responsible for coordinating all foreign development activities.** 91 **An exception to the Foreign Assistance Act is when Congress specifically authorizes the Department of Defense (DoD) to obligate defense funding for the benefit of a foreign state, military or population, or if the funding is for "little t" training.** 92 Because "**little t" training, which protects U.S. forces by promoting safety, familiarization, and interoperability with foreign forces, does not constitute security cooperation, such activities are funded by O&M**. However, a second issue arises because most efforts to build NATO ally and partner capacity likely will exceed the parameters of "little t" training and will fall under the umbrella of foreign assistance. Accordingly, funding for such security cooperation programs will come from more specific appropriations, as described below.

#### 2AC – Security cooperation broader: Security coop entails transferring defense articles, mil-to-mil exercises, military education, and building partner capacity. Both DOD-implemented Title 22 and DOD-administered Title 10 programs are topical.

Arabia ’21 [Christina; May 17; CRS Analyst in Security Assistance, Security Cooperation and the Global Arms Trade; Congressional Research Service, “Defense Primer: DOD “Title 10” Security Cooperation,” https://sgp.fas.org/crs/natsec/IF11677.pdf]

Security Cooperation (SC) Overview

**The Department of Defense (DOD) uses the term security cooperation (SC) to refer broadly to DOD interactions with foreign security establishments**. SC activities include

**• the transfer of defense articles and services;**

**• military-to-military exercises;**

**• military education, training, and advising; and**

**• capacity building of partner security forces.**

SC programs are intended to encourage and enable partner nations (PNs) to work with the United States to achieve strategic objectives. They are considered a key tool for achieving U.S. national security and foreign policy objectives. These activities are executed through both DOD-administered SC programs (authorized under Title 10, U.S.C.) and DOD-implemented State Department (DOS) security assistance (SA) programs (authorized under Title 22, U.S.C). Beyond grant-based programs, SC encompasses the Foreign Military Sales program and enables U.S. and PN collaboration on defense articles. The following sections focus on DOD “Title 10” activities.

SC: Policy and Objectives

SC activities aim to achieve particular objectives in support of U.S. national security and defense strategies. Specifically, SC may build defense relationships that promote U.S. security interests, enhance military capabilities of U.S. allies and partners, and provide the United States with access to PNs. Under the overarching goal of furthering U.S. national security and foreign policy interests, SC emphasizes partnerships, aiming to be mutually beneficial for the United States and its partners. SC activities aim to develop and strengthen a PN’s ability to provide internal security, contribute to regional security efforts, combat shared threats, and increase military interoperability with the United States.

The 2018 National Defense Strategy (NDS) signaled the Trump Administration’s intention to shift SC activities from nearly two decades of prioritizing counterterrorism toward “great power competition” (GPC) with Russia and China. The shift raised questions as to how SC should be realigned to meet this objective and what the implications could be for scaling down counterterrorism-focused SC activities in Africa and the Middle East, especially as Russia and China increase their influence. Some DOD officials and defense analysts have suggested that rather than a shift, counterterrorism, as well as irregular warfare, should remain priorities within GPC. The Biden Administration has yet to release a new NDS; however, its Interim National Security Strategic Guidance broadly identifies authoritarianism and strategic competition as priority threats that require coordination and cooperation with allies and partners.

SC: Roles and Responsibilities

Many SC activities require DOD to coordinate with multiple DOD components and other federal departments, primarily DOS. Some DOD SC activities require varying levels of coordination with DOS. Within DOD, the Undersecretary of Defense for Policy (USD[P]) exercises overall direction, authority, and control over SC matters.

The Defense Security Cooperation Agency (DSCA) represents the interests of the Secretary of Defense and USD(P) in SC matters and is tasked with directing, administering, and executing many SC programs, developing SC policy, and providing DOD-wide SC guidance. DSCA is also DOD’s main interlocutor between the PNs, implementing agencies, and the defense industry. The Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict (ASD-SO/LIC) oversees and approves some SC training activities that are managed by DSCA. U.S. Special Operations Command (SOCOM) coordinates those SC activities executed by special operations forces (SOF). DOS leads U.S. foreign aid and has final say on SA. DOS’s Bureau of Political-Military Affairs (PM) is the principal link to DOD and ensures that SA is integrated with other U.S. policies and activities at the country, regional, and global levels. PM also determines PN eligibility, appropriate SA programs, and which defense articles and equipment are permitted for transfer.

### NATO

#### NATO is the military alliance of member countries.

#### Dictionary.com ND https://www.dictionary.com/browse/nato

**North Atlantic Treaty Organization:** **a political and military alliance of countries in Europe and North America established in Washington, D.C. (1949) for the purpose of collective defense against aggression**, comprising Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Portugal, the United Kingdom, the United States, Greece, Turkey, Germany, Spain, the Czech Republic, Hungary, Poland, Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia, Albania, Croatia, Montenegro, and North Macedonia.

#### NATO is a consensus based alliance – individual countries belong to NATO, but are not NATO itself.

Masters 2022 [Jonathan, “What is NATO” via *Council on Foreign Relations* https://www.cfr.org/backgrounder/what-nato#chapter-title-0-4]

Headquartered in Brussels, **NATO is a consensus-based alliance in which decisions must be unanimous. However, individual states or subgroups of allies can initiate action outside NATO’s auspices.** For instance, the United States, France, and the United Kingdom began policing a UN-sanctioned no-fly zone in Libya in early 2011 and, within days, transferred command of the operation to NATO once [Turkey’s concerns](https://www.reuters.com/article/us-libya-turkey/turkey-opposes-any-nato-operation-in-libya-idUSTRE72D49D20110314) had been allayed. Member states are not required to participate in every NATO operation; Germany and Poland declined to contribute directly to the campaign in Libya.

NATO’s military structure comprises two strategic commands: the Supreme Headquarters Allied Powers Europe, located near Mons, Belgium, and the Allied Command Transformation, located in Norfolk, Virginia. The supreme allied commander Europe oversees all NATO military operations and is always a U.S. flag or general officer; U.S. Air Force General Tod D. Wolters currently holds this position. Although the alliance has an integrated command, most forces remain under their respective national authorities until NATO operations commence.

#### Must be North Atlantic Council

NATO handbook 2006 [https://www.nato.int/docu/handbook/2006/hb-en-2006/Part2.pdf]

The **North Atlantic Council (NAC) has effective political authority and powers of decision, and consists of permanent representatives of all member countries meeting together at least once a week**. The Council also meets at higher levels involving foreign ministers, defence ministers or heads of state and government, but it has the same authority and powers of decisionmaking, and its decisions have the same status and validity, at whatever level it meets. The Council has an important public profile and issues declarations and communiqués explaining the Alliance’s policies and decisions to the general public and to governments of countries which are not members of NATO. The Council is the only body within the Alliance which derives its authority explicitly from the North Atlantic Treaty. The Council itself was given responsibility under the Treaty for setting up subsidiary bodies. Many committees and planning groups have since been created to support the work of the Council or to assume responsibility in specific fields such as defence planning, nuclear planning and military matters. The Council thus provides a unique forum for wide-ranging consultation between member governments on all issues affecting their security and is the most important decision-making body in NATO. All member countries of NATO have an equal right to express their views round the Council table. Decisions are the expression of the collective will of member governments arrived at by common consent. All member governments are party to the policies formulated in the Council or under its authority and share in the consensus on which decisions are based.

#### Aff must fiat proposal. Normal means is that the proposal goes to the Secretary General and the North Atlantic Council.

Michel 2006 Leo. "NATO Decisionmaking: How the “Consensus Rule” Works." *Croatian International Relations Review* 12, no. 42/43 (2006): 7-14.

Although international security affairs cognoscenti often refer to the NATO consensus rule, the North Atlantic Treaty does not specify how collective decisions are to be made, with one exception: the Article 10 provision that "unanimous agreement" is necessary to invite a state to join the Alliance. **Absent any explicit voting procedure, NATO has developed a set of customary practices. Most decisions are based on draft proposals circulated to all Allies by the Secretary General, who chairs the North Atlantic Council (NAC), or by the chairperson of one of the hundreds of NATO committees and working groups**.' These draft proposals may be initiated by the Secretary General, the IS, or individual Allies. Written proposals generally are preceded by consultations in a variety of forums, including bilateral or multilateral discussions in allied capitals, Allied missions at NATO Headquarters, the NAC, and committees and working groups established by the NAC. Such consultations are useful indeed, in some cases they are critical-to identify possible concerns or objections among Allies and to craft mutually acceptable solutions. When a written decision or statement of position is deemed necessary, it frequently occurs that some or all of the Permanent Representatives (Perm Reps) cannot provide their respective national positions at the conclusion of a specific AC or committee meeting. In such cases, the Secretary General or relevant committee chairperson may opt to circulate the draft proposal under a silence procedure.' If no Ally "breaks silence"-that is, notifies the IS in writing of its objection before the deadline set by the Secretary General or committee chairperson-the proposal is considered approved. However, if one or more Ally breaks silence, the proposal is normally referred back to the relevant body for further work to reach consensus. As a rule, NATO does not publicly identify which countries break silence, although national positions may be leaked to the press (sometimes by the country breaking silence) if the issue is contentious. Moreover, as there is no formal voting procedure, there is no formal abstention procedure, either.

### Artificial Intelligence

#### Minimum – threshold interpretation

Samoili, Sofia, Montserrat Lopez Cobo, Emilia Gomez, Giuditta De Prato, Fernando Martinez-Plumed, and Blagoj Delipetrev. "AI Watch. Defining Artificial Intelligence. Towards an operational definition and taxonomy of artificial intelligence." (2020).

Despite the multiple facets of AI, and consequently the lack of a common definition, there are a number of commonalities that we observe in the analysed definitions. This expression of common aspects suggests that they may be considered as the main features of AI: — Perception of the environment, including the consideration of the real world complexity (HLEG, 2019; European AI Strategy, 2018; EC JRC Flagship report on AI, 2018; Tsinghua University, 2018; Nakashima, 1999; Nilsson, 1998; Poole et al., 1998; Fogel, 1995; Wang, 1995; Albus, 1991; Newell and Simon, 1976). — Information processing: collecting and interpreting inputs (in form of data) (HLEG, 2019; European AI Strategy, 2018; EC JRC Flagship report on AI, 2018; Kaplan and Haenlein, 2018; Tsinghua University, 2018; Nakashima, 1999; Nilsson, 1998; Poole et al., 1998; Wang, 1995). — Decision making (including reasoning and learning): taking actions, performance of tasks (including adaptation, reaction to changes in the environment) with certain level of autonomy (HLEG, 2019; OECD, 2019; European AI Strategy 2018; EC JRC Flagship report on AI 2018; Kaplan and Haenlein 2018; Tsinghua University, 2018; Nilsson, 1998; Poole Mackworth and Goebel, 1998; Fogel, 1995; ISO/IEC 2382- 28, 1995; Wang, 1995; Albus, 1991; Newell and Simon, 1976). — Achievement of specific goals: this is considered as the ultimate reason of AI systems (HLEG 2019; OECD, 2019; European AI Strategy, 2018; Kaplan and Haenlein, 2018; Poole at al., 1998; Fogel, 1995; Albus, 1991; Newell and Simon, 1976).

#### HLEG definitions – AI is software and can include hardware that seeks to accomplish a goal by perceiving the environment through data acquisition and independent reasoning using such data.

Samoili, Sofia, Montserrat Lopez Cobo, Emilia Gomez, Giuditta De Prato, Fernando Martinez-Plumed, and Blagoj Delipetrev. "AI Watch. Defining Artificial Intelligence. Towards an operational definition and taxonomy of artificial intelligence." (2020).

HLEG definition of AI "Artificial intelligence (**AI) systems are software (and possibly also hardware) systems designed by humans(2) that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s)** to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions."

#### National Defense Authorization Act – AI has five tenets (inclusive of all five tenets).

John S. McCain **National Defense Authorization Act**, Section 1051 for Fiscal Year **2019** https://www.nscai.gov/about/authorization-act/

(f) **DEFINITION OF ARTIFICIAL INTELLIGENCE**.—In this section, the term ‘‘artificial intelligence’’ includes each of the following:

(1) Any artificial system that performs **tasks under varying and unpredictable circumstances without significant human oversight,** or that can learn from experience and improve performance when exposed to data sets.

(2) **An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception**, cognition, planning, learning, communication, or physical action.

(3) **An artificial system designed to think or act like a human**, including cognitive architectures and neural networks.

(4) **A set of techniques, including machine learning that is designed to approximate a cognitive task.**

(5) **An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception**, planning, reasoning, learning, communicating, decision-making, and acting.

#### Applied use of AI can be extra T

Samoili et al 2020 [Sofia, Montserrat Lopez Cobo, Emilia Gomez, Giuditta De Prato, Fernando Martinez-Plumed, and Blagoj Delipetrev. "AI Watch. Defining Artificial Intelligence. Towards an operational definition and taxonomy of artificial intelligence." (2020).]

2.2.1 AI taxonomy The proposed taxonomy addresses political, research and industrial perspectives and aims to cover and classify the AI landscape, which consists of economic agents with R&D or industrial AI related activities. Therefore, this taxonomy is able to detect correspondingly a wide range of core AI related scientific subdomains (e.g. knowledge representation and reasoning, machine learning) and transversal topics such as applications of the former (e.g. robots, automated vehicles, etc.) or ethical and philosophical considerations. The taxonomy is presented as a reduced list of abstract high level domains and their related subdomains. These are meant to encompass the main theoretical AI branches, as well as AI related non-technological issues. The AI subdomains are represented by a list of keywords (see subsection 2.2.2), these will enable us to capture the AI activities carried out by economic agents, for further analysis of the AI landscape from a techno-economic perspective.

#### OECD and UN – AI is acquiring and applying knowledge and carrying out intelligent behavior.

https://www.unescap.org/sites/default/files/ESCAP\_Artificial\_Intelligence.pdf

There is no universally agreed definition of AI. According to OECD1 and UNCTAD2 , **AI is defined as the ability of machines and systems to acquire and apply knowledge, and to carry out intelligent behaviou**r. This includes a variety of cognitive tasks (e.g. sensing, processing oral language, reasoning, learning, making decisions) and demonstrating an ability to move and manipulate objects accordingly. Intelligent systems use a combination of big data analytics, cloud computing, machineto-machine communication and the Internet of Things (IoT) to operate and learn. AI is a software and generally algorithm based although its functions (e.g. talking or playing a game) need to be reflected by physical substance (such as robots). In this sense, AI is like a human brain. To date, AI development has been generally focused on a selection of specific domains (see Table 1).

#### Machine learning is AI – Agrawal. We meet.

Economic Policy for Artificial Intelligence

Ajay **Agrawal**, Joshua **Gans,** **and** Avi **Goldfarb**

Innovation Policy and the Economy **2019** 19:, 139-159

https://www.journals.uchicago.edu/doi/full/10.1086/699935

The economic impact of computer intelligence that can do what humans do would be extraordinary. At the NBER Conference on AI in September 2017 Kahneman ([2018](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf40)) noted, “I do not think that there is very much that we can do that computers will not eventually be programmed to do.” That said, the technology that has generated the recent excitement around AI is not true artificial general intelligence. Instead, the majority of recent advances have come from a field of AI called “machine learning,” which is a branch of computational statistics.

**The Oxford English Dictionary defines artificial intelligence as “the theory and development of computer systems able to perform tasks normally requiring human intelligence.” This definition is both broad and fluid**. There is an old joke among computer scientists that artificial intelligence defines what machines cannot yet do. Before a machine could beat a human expert at chess, such a win would mean artificial intelligence. After the famed match between IBM’s Deep Blue and Gary Kasparov, playing chess was called computer science and other challenges became artificial intelligence.

Computer chess and other early attempts at machine intelligence were primarily rules-based, symbolic logic. It involved human experts generating instructions codified as algorithms (Domingos [2015](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf24)). By the 1980s, it became clear that outside of very controlled environments, such rules-based systems failed. They did not cope with the complexity of most applications and AI research funding largely dried up (Markov [2015](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf44)).

**More recently, a different approach has taken off: machine learning. The idea is to have computers “learn” from example data. Humans conduct many tasks that are difficult to codify.** For example, humans are good at recognizing familiar faces, but we would struggle to explain this skill. By connecting data on names to image data on faces, machine learning solves this problem by predicting which image data patterns are associated with which names.

Economists looking at a machine-learning textbook will find many familiar topics, including multiple regression, principal components analysis, and maximum likelihood estimation, along with some that are less familiar such as hidden Markov models, neural networks, deep learning, and reinforcement learning. Even these are not entirely new. Igami ([2018](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf39)) highlights similarities between these topics and structural econometrics models such as Rust ([1987](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf51)). Unlike the typical emphasis of econometricians on causal inference, machine learning focuses on prediction. As machine learning pioneer Geoffrey Hinton put it, “Take any old problem where you have to predict something and you have a lot of data, and deep learning is probably going to make it work better than existing techniques.”[3](https://www.journals.uchicago.edu/doi/full/10.1086/699935#fn3) In our own work (Agrawal, Gans, and Goldfarb [2018b](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf7), [2018c](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf8), [2018d](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf9)), we explore the consequences of a drop in the quality-adjusted cost of prediction on organizations and on the nature of work. We define prediction as the ability to take known information to generate new information. Better prediction is likely to have widespread consequences because prediction is fundamental to decision-making.

Therefore, like the steam engine, electrification, and the internet, AI—defined by machine learning—is likely to be a general purpose technology (GPT). As Brynjolfsson, Rock, and Syverson ([2018](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf18)) argue, machine learning is likely to impact a wide range of sectors, and there is no doubt that technological progress has been rapid. They note that error rates in image recognition improved by an order of magnitude between 2010 and 2016. There have been rapid improvements in areas from language translation to medical diagnosis. As a GPT, it is likely to be an enabling technology that opens up new opportunities. For example, while electric motors did reduce energy costs, the productivity impact was largely driven by increased flexibility in the design and location of factories (David [1990](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf21)). This process of coinvention is costly and slow (Bresnahan and Greenstein [1996](https://www.journals.uchicago.edu/doi/full/10.1086/699935#rf16)).

#### Goal-based interpretation – Harris

**Harris**, Laurie A. "Artificial Intelligence: Background, Selected Issues, and Policy Considerations." Congressional Research Service Report 46795 (**2021**).

#### https://crsreports.congress.gov/product/pdf/R/R46795

Defining AI is not merely an academic exercise, particularly when drafting legislation. AI research and applications are evolving rapidly. Thus, congressional consideration of whether to include a definition for AI in a bill, and if so how to define the term or related terms, necessarily include attention to the scope of the legislation and the current and future applicability of the definition. Considerations in crafting a definition for use in legislation include whether it is expansive enough not to hinder the future applicability of a law as AI develops and evolves, while being narrow enough to provide clarity on the entities the law affects. Some stakeholders, recognizing the many challenges of defining AI, have attempted to define principles that might help guide policymakers. Research suggests that differences in definitions used to identify AI related research may contribute to significantly different analyses and outcomes regarding AI competition, investments, technology transfer, and application forecasts.5 **The John S. McCain National Defense Authorization Act for** Fiscal Year 2019 (P.L. 115-232) **included the first definition of AI in federal statute.6 Like those in other previously introduced bills, the definition incorporated a commonly cited framework of four possible goals that AI systems may pursue: systems that think like humans** (e.g., neural networks), **act like humans** (e.g., natural language processing), **think rationally** (e.g., logic solvers), **or act rationally** (e.g., intelligent software agents embodied in robots).7 However, AI research and applications do not necessarily fall solely within any one of these four categories.

#### NIST interpretation – solving complex problems, making predictions, undertaking tasks that require human-like sensing.

**Harris**, Laurie A. "Artificial Intelligence: Background, Selected Issues, and Policy Considerations." Congressional Research Service Report 46795 (**2021**).

#### https://crsreports.congress.gov/product/pdf/R/R46795

While there is no single, commonly agreed upon definition of AI, the National Institute of Standards and Technology (NIST) has described AI technologies and systems as **comprising “software and/or hardware that can learn to solve complex problems, make predictions or undertake tasks that require human-like sensing** (such as vision, speech, and touch), perception, cognition, planning, learning, communication, or physical action.” 3 Definitions may vary according to the discipline in which AI is being discussed.4 AI is often described as a field that encompasses a range of methodologies and application areas, such as machine learning (ML), natural language processing (NLP), and robotics.

#### Cornell Law Definition – AI requires algorithms.

https://www.law.cornell.edu/wex/artificial\_intelligence\_%28ai%29

**Artificial intelligence or AI is the use of machine learning technology and**[**algorithms**](https://www.law.cornell.edu/wex/algorithm) (the automated computational application of rules) to perform tasks, to make rules and/or predictions based on existing datasets. According to the notes of [10 U.S. Code § 2358](https://www.law.cornell.edu/uscode/text/10/2358)  artificial intelligence is defined as:

1. “Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.
2. An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action.
3. An artificial system designed to think or act like a human, including cognitive architectures and neural networks.
4. A set of techniques, including machine learning, that is designed to approximate a cognitive task.
5. An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision making, and acting.”

#### NATO definition - short

Amy Ertan Maggie Gray 2021 “An Overview of NATO Member States’ Strategies and Deployment” https://ccdcoe.org/uploads/2021/12/Strategies\_and\_Deployment\_A4.pdf

NATO’s Science and Technology Organisation (STO) defines AI relatively broadly, as **‘the ability of machines to perform tasks that typically require human intelligence’**.8 The STO and the US’s Defense Advanced Research Projects Agency (DARPA) categorise AI innovation in several waves,9 including ‘first-wave’ or ‘knowledge-based’ AI and ‘second-wave’ or ‘data-based’ AI.10 → ‘First-wave’ AI (sometimes called ‘knowledge-based’ or ‘expert systems’) has existed for decades and is already integrated into a number of systems, both military and commercial. Knowledge-based AI systems rely on rules-based decision-making, facilitating automation by using expert knowledge hand-crafted by humans and a number of if-then statements to dictate their actions.11 Knowledge-based systems cannot reason about situations outside of their carefully crafted if-then knowledge, nor can they learn from their experiences, making them incredibly brittle.12 → ‘Second-wave’ or ‘data-based’ AI systems solve specific problems by using statistical models that are trained on large, sometimes pre-labelled data sets.13 Data-based AI includes machine learning (ML) and its sub-set deep learning (DL), which have seen considerable growth in recent years, in large part because of advances in deep learning neural networks. Machine learning algorithms include supervised, unsupervised, and reinforcement learning.14 Data-based AI models are entirely reliant on the data they are trained on. For example, a drone equipped with second-wave AI data analytics and surveillance technology may be able to identify a mobile intercontinental ballistic missile (ICBM) base from a photo by using a statistics-based image recognition15 model trained on pre-labelled images of mobile ICBM bases.

#### NATO definition – long, autonomy extra t

#### AI for the purposes of NATO means data analytics, control, and decision support systems.

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NATO’s Science and Technology Organisation (STO) defines AI relatively broadly, as ‘the ability of machines to perform tasks that typically require human intelligence’.8 The STO and the US’s Defense Advanced Research Projects Agency (DARPA) categorise AI innovation in several waves,9 including ‘first-wave’ or ‘knowledge-based’ AI and ‘second-wave’ or ‘data-based’ AI.10 → ‘First-wave’ AI (sometimes called ‘knowledge-based’ or ‘expert systems’) has existed for decades and is already integrated into a number of systems, both military and commercial. Knowledge-based AI systems rely on rules-based decision-making, facilitating automation by using expert knowledge hand-crafted by humans and a number of if-then statements to dictate their actions.11 Knowledge-based systems cannot reason about situations outside of their carefully crafted if-then knowledge, nor can they learn from their experiences, making them incredibly brittle.12 → ‘Second-wave’ or ‘data-based’ AI systems solve specific problems by using statistical models that are trained on large, sometimes pre-labelled data sets.13 Data-based AI includes machine learning (ML) and its sub-set deep learning (DL), which have seen considerable growth in recent years, in large part because of advances in deep learning neural networks. Machine learning algorithms include supervised, unsupervised, and reinforcement learning.14 Data-based AI models are entirely reliant on the data they are trained on. For example, a drone equipped with second-wave AI data analytics and surveillance technology may be able to identify a mobile intercontinental ballistic missile (ICBM) base from a photo by using a statistics-based image recognition15 model trained on pre-labelled images of mobile ICBM bases. Throughout this report the terms ‘autonomous’ and ‘AI’ will both be used. The authors acknowledge that to many familiar with the technical terminology, ‘autonomy’ and ‘artificial intelligence’ may be considered distinct terms. Agreement on what the terms ‘autonomy’ and ‘AI’ mean varies within academic literature, often in inconsistent ways. For instance, some no longer consider ‘first-wave’ systems, which do not use ML, to be AI. Scharre and Horowitz (2015) propose a basic definition of autonomy when writing about autonomous weapons. They write that ‘autonomy is the ability of a machine to perform a task without human input’, though they point out that this may or may not involve aspects of artificial-intelligence technology.16 Some also make a distinction between ‘autonomous’ systems and ‘automated’ or ‘automatic’ systems. For example, NATO’s Allied Command Transformation differentiates between ‘autonomous’ systems and ‘automated’ systems in the following way: → **autonomous functioning refers to the ability of a system, platform, or software to complete a task without human intervention, using behaviours resulting from the interaction of computer programming with the external environment. Tasks or functions executed by a platform, or distributed between a platform and other parts of the system, may be performed using a variety of behaviours, which may include reasoning and problem solving, adaptation to unexpected situations, self-direction, and learning**. Which functions are autonomous – and the extent to which human operators can direct, control, or cancel functions – is determined by system design trade-offs, mission complexity, external operating environment conditions, and legal or policy constraints. This can be contrasted with automated functions, which (although they require no human intervention) operate using a fixed set of inputs, rules, and outputs, the behaviour of which is deterministic and largely predictable. Automatic functions do not permit the dynamic adaptation of inputs, rules, or outputs.17 Given the frequent conflation of the terms ‘autonomy’, ‘autonomous systems’, and ‘AI’ in documents reviewed for this report, the authors’ terminology follows the tendency of a number of **NATO members to define AI and autonomy as technologies capable of going further than automated behaviour. Within this report, the word ‘autonomous’ will generally be used to describe first-wave-like systems that physically operate on their own and respond to their external environments. The term ‘AI’ will be used to describe second-wave data analytics, control systems, and decision support systems.** When describing specific military systems, the authors use the same terms used by the manufacturers or by third-party experts describing the system (for example, L3Harris describes its MAST-9 ASV as ‘autonomous’, so the authors describe the MAST-9 as ‘autonomous’). Within this scope, autonomous systems do not necessarily represent or contain AI-enabled or ML capabilities.

#### AI – is four subfields: machine learning, natural language processing, artificial neural networks, computer vision

Hashimoto 2018 [Daniel A et al. “Artificial Intelligence in Surgery: Promises and Perils.” *Annals of surgery* vol. 268,1 (2018): 70-76. doi:10.1097/SLA.0000000000002693]

Artificial intelligence (AI) can be loosely defined as the study of algorithms that give machines the ability to reason and perform cognitive functions such as problem solving, object and word recognition, and decision-making.1 Previously thought to be science fiction, AI has increasingly become the topic of both popular and academic literature as years of research have finally built to thresholds of knowledge that have rapidly generated practical applications, such as International Business Machine’s (Armonk, NY, USA) Watson and Tesla’s (Palo Alto, CA, USA) autopilot.2 Stories of man-versus-machine, such as that of John Henry working to death to outperform the steam-powered hammer3 , demonstrate how machines have long been feared yet ultimately both accepted and eagerly anticipated. Society proceeded to integrate simple machines into human workflow, and the resulting Industrial Revolution yielded a massive shift in productivity and quality of life. Similarly, AI has inspired awe and struck fear in people who now face a technology that can not only outperform but also potentially outthink its creators. With the Information Age, a shift in workflow and productivity similar to that of the Industrial Revolution has begun; and surgery stands to gain from the current explosion of information technology. However, as with many emerging technologies, the true promise of AI can be lost in its hype.4 It is, therefore, important for surgeons to have a foundation of knowledge of AI to understand how it may impact healthcare and to consider ways in which they may interact with this technology. This review provides an introduction to AI by highlighting four core subfields – **1) machine learning, 2) natural language processing, 3) artificial neural networks, 4) computer vision** – their limitations, and future implications for surgeons. Subfields in AI AI’s roots are found across multiple fields, including robotics, philosophy, psychology, linguistics, and statistics.5 Major advances in computer science, such as improvements in processing speed and power, have functioned as a catalyst to allow for the base technologies required for the advent of AI. The growing popularity of AI across many different industries has attracted venture capital investment up to $5 billion in 2016 alone.6 Much of the current attention on AI has focused on the four core subfields introduced below. Machine Learning **Machine learning (ML) enables machines to learn and make predictions by recognizing patterns**. Traditional computer programs are explicitly programmed with a desired behavior (e.g. when the user clicks an icon, a new program opens). ML allows a computer to utilize partial labelling of the data (supervised learning) or the structure detected in the data itself (unsupervised learning) to explain or make predictions about the data without explicit programming (Figure 1). Supervised learning is useful for training a ML algorithm to predict a known result or outcome while unsupervised learning is useful in searching for patterns within data.7 A third category within machine learning is reinforcement learning, where a program attempts to accomplish a task (e.g. driving a car, inferring medical decisions) while learning from its own successes and mistakes.8 One can conceptualize reinforcement learning as the computer science equivalent of operant conditioning9 and is useful for automated tuning of predictions or actions, such as controlling an artificial pancreas system to fine tune the measurement and delivery of insulin to diabetic patients.10 ML is particularly useful for identifying subtle patterns in large datasets – patterns that may be imperceptible to humans performing manual analyses – by employing techniques that allow for more indirect and complex non-linear relationships and multivariate effects than conventional statistical analysis.11,12 ML has outperformed logistic regression for prediction of surgical site infections (SSI) by building non-linear models that incorporate multiple data sources, including diagnoses, treatments, and laboratory values.13 Furthermore, multiple algorithms working together (ensemble ML) can be used to calculate predictions at accuracy levels thought to be unattainable with conventional statistics.14 For example, by analyzing patterns of diagnostic and therapeutic data (including surgical resection) in the Surveillance, Epidemiology and End Results (SEER) cancer registry and comparing data to Medicare claims, ensemble ML with random forests, neural networks, and lasso regression was able to predict patient lung cancer staging by using International Classification of Diseases (ICD)-9 claims data alone with 93% sensitivity, 92% specificity, and 93% accuracy, outperforming a decision tree approach based on clinical guidelines alone (53% sensitivity, 89% specificity, 72% accuracy).15 Natural Language Processing **Natural language processing (NLP) is a subfield that emphasizes building a computer’s ability to understand human language and is crucial for large scale analyses of content such as electronic medical record (EMR) data**, especially physicians’ narrative documentation. To achieve human-level understanding of language, successful NLP systems must expand beyond simple word recognition to incorporate semantics and syntax into their analyses.16 Rather than relying on codified classifications such as ICD codes, NLP enables machines to infer meaning and sentiment from unstructured data (e.g. prose written in the history of present illness or in a physician’s assessment and plan). NLP allows clinicians to write more naturally rather than having to input specific text sequences or select from menus to allow a computer to recognize the data. NLP has been utilized for large scale database analysis of the EMR to detect adverse events and postoperative complications from physician documentation17, 18, and many EMR systems now incorporate NLP – for example, to achieve automated claims coding – into their underlying software architecture to improve workflow or billing.19 In surgical patients, NLP has been used to automatically comb through EMRs to identify words and phrases in operative reports and progress notes that predicted anastomotic leak after colorectal resections. Many of its predictions reflected simple clinical knowledge that a surgeon would have (e.g. operation type and difficulty), but the algorithm was also able to adjust predictive weights of phrases describing patients (e.g. irritated, tired) relative to the postoperative day to achieve predictions of leak with a sensitivity of 100% and specificity of 72%.20 The ability of algorithms to self-correct can increase the utility of their predictions as datasets grow to become more representative of a patient population. Artificial Neural Networks **Artificial neural networks, a subfield of ML, are inspired by biological nervous systems and have become of paramount importance in many AI applications.** Neural networks process signals in layers of simple computational units (neurons); connections between neurons are then parameterized via weights that change as the network learns different input-output maps corresponding to tasks such as pattern/image recognition and data classification (Figure 2).7 Deep learning networks are neural networks comprised of many layers and are able to learn more complex and subtle patterns than simple one or two-layer neural networks.21 Clinically, ANNs have significantly outperformed more traditional risk prediction approaches. For example, an ANN’s sensitivity (89%) and specificity (96%) outperformed APACHE II sensitivity (80%) and specificity (85%) for prediction of pancreatitis severity six hours after admission.22 By using clinical variables such as patient history, medications, blood pressure, and length of stay, ANNs, in combination with other ML approaches, have yielded predictions of in-hospital mortality after open abdominal aortic aneurysm repair with sensitivity of 87%, specificity of 96.1%, and accuracy of 95.4%.23 Computer Vision **Computer vision describes machine understanding of images and videos, and significant advances have resulted in machines achieving human-level capabilities in areas such as object and scene recognition.**24 Important healthcare-related work in computer vision includes image acquisition and interpretation in axial imaging with applications including computer-aided diagnosis, image-guided surgery, and virtual colonoscopy.25 Initially influenced by statistical signal processing, the field has recently shifted significantly towards more data-intensive ML approaches, such as neural networks,26 with adaptation into new applications. Utilizing ML approaches, current work in computer vision is focusing on higher level concepts such as image-based analysis of patient cohorts, longitudinal studies, and inference of more subtle conditions such as decision-making in surgery. For example, real-time analysis of laparoscopic video has yielded 92.8% accuracy in automated identification of the steps of a sleeve gastrectomy and noted missing or unexpected steps.27 With one minute of high-definition surgical video estimated to contain 25 times the amount of data found in a high-resolution computed tomography image28, video could contain a wealth of actionable data.29, 30 Thus, while predictive video analysis is in its infancy, such work provides proofof-concept that AI can be leveraged to process massive amounts of surgical data to identify or predict adverse events in real-time for intraoperative clinical decision support (Figure 3).

### Biotechnology

#### OECD

Oecd Statistics Directorate, 9-25-2001, "OECD Glossary of Statistical Terms," No Publication, https://stats.oecd.org/glossary/detail.asp?ID=219

https://stats.oecd.org/glossary/detail.asp?ID=219#:~:text=OECD%20Statistics,of%20knowledge%2C%20goods%20and%20services.

**Biotechnology is defined as the application of science and technology to living organisms as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.**

#### Merriam Webster

https://www.merriam-webster.com/dictionary/biotechnology

: **the manipulation (**as through genetic engineering) **of living organisms or their components to produce useful usually commercial products** (such as pest resistant crops, new bacterial strains, or novel pharmaceuticals)

#### European Federation for Biotechnology – Biotechnology is the integrated use of biochemistry, microbiology, and engineering sciences

**Bull Holt and Lilly 1982** A. T., Holt, G., and Lilly, M. D., Biotechnology: International Trends and Perspectives (Paris: Organisation for Economic Co-Operation and Development, 1982).

[Biotechnology is] “**the integrated use of biochemistry, microbiology, and engineering sciences in order to achieve technological (industrial) application of the capabilities of micro-organisms, cultured tissue cells, and parts thereof**” (3).

**Biotech is the use of recombinant DNA methods or broadly defined as anything related to life sciences**

#### Feldman 2000

National Academies of Sciences, Engineering, and Medicine. 2000. The Small Business Innovation Research Program: An Assessment of the Department of Defense Fast Track Initiative. Washington, DC: The National Academies Press. https://doi.org/10.17226/9985.  
  
Role of the Department of Defense in Building Biotech Expertise\*

Maryann P. Feldman

Biotechnology may be narrowly defined as **the use of recombinant DNA methods or broadly defined as anything related to life sciences**. The definition used here is broadly inclusive of the spectrum of disciplines that utilize modern biology in their work. Thus, biotechnology is defined as any activity that substantially involves research, development, or manufacture of (1) biologically active molecules, (2) devices that employ or affect biological processes, or (3) devices and software for production or management of biological information.

**Biotechnology is the science of modifying the genetic composition of plants, animals, and microorganisms.**

#### EPA 2022

https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra/epas-regulation-biotechnology-use-pest-management#:~:text=Biotechnology%20is%20the%20science%20of,plants%2C%20animals%2C%20and%20microorganisms.

**Biotechnology is the science of modifying the genetic composition of plants, animals, and microorganisms. Historically, biotechnology has relied on conventional plant and animal breeding practices to modify genetic composition.**

**Modern biotechnology** relies on newer techniques, such as genetic engineering, to incorporate genetic material from one living organism into another. Products of biotechnology include medications, human insulin, and enzymes used in laundry detergents and cheese-making. More recently, the use of biotechnology has led to new pesticide products that control a variety of pests. These biologically produced pesticides, which use the inherent pest-fighting abilities of many existing plants and microbes, have properties that distinguish them from those of conventional chemical pesticides. When these products have unique biological properties, they may also pose unique regulatory challenges.

#### NUST ND

Norweigan University of Science and Technology defines biotechnology https://www.ntnu.edu/ibt/about-us/what-is-biotechnology

**Biotechnology is technology that utilizes biological systems, living organisms or parts of this to develop or create different products.**

#### Hilgartner 2001

Biotechnology is an umbrella term for an ever expanding area of research Hilgartner, Stephen. “Biotechnology.” International Encyclopedia of the Social and Behavioral Sciences. 2001. <https://www.sciencedirect.com/science/article/pii/B0080430767031478>

Defining biotechnology poses challenges, for the word is less a tightly-defined, technical

term than a loose umbrella category, or even a slogan, that conveys— sometimes simultaneously—visions of unbounded progress and unregulated tampering with nature. Many authors have tried to capture biotechnology within their own well-crafted definitions, but these attempts cannot neatly contain this expanding network of activities and its increasingly dense connections to diverse social worlds. Although the word has a long history (Bud 1993), in most contemporary contexts **biotechnology refers to a novel and growing collection of techniques, grounded in molecular and cell biology, for analyzing and manipulating the molecular building blocks of life**. The term also designates products, such as pharmaceuticals or geneticallymodified foods, created using these techniques. At times, it refers not to products or techniques but to an economic sector or area of research.

### Cybersecurity

#### NIST ND

National Institute of Standards and Technology

https://csrc.nist.gov/glossary/term/cybersecurity

**The process of protecting information by preventing, detecting, and responding to attacks.** Source(s): NISTIR 8183 under Cybersecurity NIST Cybersecurity Framework Version 1.1, NIST Cybersecurity Framework Version 1.0.

#### Webster

https://www.merriam-webster.com/dictionary/cybersecurity Definition of cybersecurity :

**measures taken to protect a computer or computer system (as on the Internet) against unauthorized access or attack**

#### NICCS ND

https://niccs.cisa.gov/cybersecurity-career-resources/glossary

cybersecurity

**Definition:** **The activity or process, ability or capability, or state whereby information and communications systems and the information contained therein are protected from and/or defended against damage, unauthorized use or modification, or exploitation**.

**Extended Definition:** Strategy, policy, and standards regarding the security of and operations in cyberspace, and encompass[ing] the full range of threat reduction, vulnerability reduction, deterrence, international engagement, incident response, resiliency, and recovery policies and activities, including computer network operations, information assurance, law enforcement, diplomacy, military, and intelligence missions as they relate to the security and stability of the global information and communications infrastructure.

**From:** CNSSI 4009, NIST SP 800-53 Rev 4, NIPP, DHS National Preparedness Goal; White House Cyberspace Policy Review, May 2009

#### Office of Management and Budget 2016

Office of Management and Budget, Managing Information as a Strategic Resource, Circular No. A-130, Washington, DC, 2016, p. 28, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A130/a130revised.pdf.

**‘Cybersecurity’ means prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and non-repudiation**.

#### CRS areas definition

Jaikaran 2021 [Chris, “Federal Cybersecurity: Background and Issues for Congress” via *Congressional Research Service* 29 September 2021

<https://crsreports.congress.gov/product/pdf/R/R46926>]

**Cybersecurity is a risk management process rather than a static goal. It involves continual work to (1) identify and (2) protect against potential cybersecurity incidents; and to (3) detect; (4) respond to; and (5) recover from actual cybersecurity incidents.** Agencies may choose to evaluate their information technology (IT) risks by understanding the threats they are susceptible to, the vulnerabilities they have, and the consequences of a successful attack for their mission and their customers.

### Resolved – Legal

#### ‘Resolved’ means to enact a policy by law

Words and Phrases 64 (Permanent Edition)

Definition of the word “resolve,” given by Webster is “to express an opinion or determination by resolution or vote; as ‘it was resolved by the legislature;” It is of similar force to the word “enact,” which is defined by Bouvier as meaning “to establish by law”.

#### Resolved means a policy

Louisiana House 5

(<http://house.louisiana.gov/house-glossary.htm>)

Resolution A legislative instrument that generally is used for making declarations, stating policies, and making decisions where some other form is not required. A bill includes the constitutionally required enacting clause; a resolution uses the term "resolved". Not subject to a time limit for introduction nor to governor's veto. ( Const. Art. III, §17(B) and House Rules 8.11 , 13.1 , 6.8 , and 7.4)

#### Resolved before a colon means legislative forum

ACC 13 # Army Career College. 12. Punctuation -- The Colon and Semicolon, United States Army, Warrant Officer Career College, Last Reviewed: December 19, 2013, http://usacac.army.mil/cac2/wocc/ColonSemicolon.asp

The colon introduces the following: A list, but only after "as follows," "the following," or a noun for which the list is an appositive: Each scout will carry the following: (colon) meals for three days, a survival knife, and his sleeping bag. The company had four new officers: (colon) Bill Smith, Frank Tucker, Peter Fillmore, and Oliver Lewis. A long quotation (one or more paragraphs): In The Killer Angels Michael Shaara wrote: (colon) You may find it a different story from the one you learned in school. There have been many versions of that battle [Gettysburg] and that war [the Civil War]. (The quote continues for two more paragraphs.) A formal quotation or question: The President declared: (colon) "The only thing we have to fear is fear itself." The question is: (colon) what can we do about it? A second independent clause which explains the first: Potter's motive is clear: (colon) he wants the assignment. After the introduction of a business letter: Dear Sirs: (colon)Dear Madam: (colon) The details following an announcement For sale: (colon) large lakeside cabin with dock A formal resolution, after the word "resolved:" Resolved: (colon) That this council petition the mayor.

#### “Resolved” before a colon reflects a legislative forum.

AOS 4 (5-12, “# 12, Punctuation – The Colon and Semicolon”, http://usawocc.army.mil/IMI/wg12.htm)

The colon introduces the following: a.  A list, but only after "as follows," "the following," or a noun for which the list is an appositive: Each scout will carry the following: (colon) meals for three days, a survival knife, and his sleeping bag. The company had four new officers: (colon) Bill Smith, Frank Tucker, Peter Fillmore, and Oliver Lewis. b. A long quotation (one or more paragraphs): In The Killer Angels Michael Shaara wrote: (colon) You may find it a different story from the one you learned in school. There have been many versions of that battle [Gettysburg] and that war [the Civil War]. (The quote continues for two more paragraphs.) c. A formal quotation or question: The President declared: (colon) "The only thing we have to fear is fear itself." The question is: (colon) what can we do about it? d. A second independent clause which explains the first: Potter's motive is clear: (colon) he wants the assignment. e. After the introduction of a business letter: Dear Sirs: (colon) Dear Madam: (colon) f. The details following an announcement For sale: (colon) large lakeside cabin with dock g. A formal resolution, after the word "resolved:" Resolved: (colon) That this council petition the mayor.

#### “Resolved” is legislative

Parcher 1 (Jeff Parcher 1, former debate coach at Georgetown, Feb 2001 http://www.ndtceda.com/archives/200102/0790.html)

Pardon me if I turn to a source besides Bill. American Heritage Dictionary: Resolve: 1. To make a firm decision about. 2. To decide or express by formal vote. 3. To separate something into constiutent parts See Syns at \*analyze\* (emphasis in orginal) 4. Find a solution to. See Syns at \*Solve\* (emphasis in original) 5. To dispel: resolve a doubt. - n 1. Firmness of purpose; resolution. 2. A determination or decision. (2) The very nature of the word "resolution" makes it a question. American Heritage: A course of action determined or decided on. A formal statement of a decision, as by a legislature. (3) The resolution is obviously a question. Any other conclusion is utterly inconceivable. Why? Context. The debate community empowers a topic committee to write a topic for ALTERNATE side debating. The committee is not a random group of people coming together to "reserve" themselves about some issue. There is context - they are empowered by a community to do something. In their deliberations, the topic community attempts to craft a resolution which can be ANSWERED in either direction. They focus on issues like ground and fairness because they know the resolution will serve as the basis for debate which will be resolved by determining the policy desirablility of that resolution. That's not only what they do, but it's what we REQUIRE them to do. We don't just send the topic committee somewhere to adopt their own group resolution. It's not the end point of a resolution adopted by a body - it's the preliminary wording of a resolution sent to others to be answered or decided upon. (4) Further context: the word resolved is used to emphasis the fact that it's policy debate. Resolved comes from the adoption of resolutions by legislative bodies. A resolution is either adopted or it is not. It's a question before a legislative body. Should this statement be adopted or not. (5) The very terms 'affirmative' and 'negative' support my view. One affirms a resolution. Affirmative and negative are the equivalents of 'yes' or 'no' - which, of course, are answers to a question.

### Resolved - Action

#### Resolved is to take action to solve a problem

The New Oxford American Dictionary, 2005 second edition. Ed. Erin McKean. Oxford University Press, Oxford Reference Online <http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t183.e65284>

"resolution n." , the action of solving a problem, dispute, or contentious matter: the peaceful resolution of all disputes | a successful resolution to the problem

### Resolved - Voting

#### Resolved means a determination reached by voting

Webster’s Revised Unabridged 98 (dictionary.com)

Resolved: 5. To express, as an opinion or determination, by resolution and vote; to declare or decide by a formal vote; -- followed by a clause; as, the house resolved (or, it was resolved by the house) that no money should be appropriated (or, to appropriate no money).

#### ‘Resolved’ means to settle formally by voting

Webster’s Law 96 ("resolved." Merriam-Webster's Dictionary of Law. Merriam-Webster, Inc. 01 Jul. 2007. <Dictionary.com http://dictionary.reference.com/browse/resolved>.)

resolve transitive verb 1 : to deal with successfully : clear up <resolve a dispute> 2 a : to declare or decide by formal resolution and vote b : to change by resolution or formal vote <the house resolved itself into a committee> intransitive verb : to form a resolution

### Resolved – Plan Text

#### Most predictable—the agent and verb indicate a debate about hypothetical government action

Jon M Ericson 3, Dean Emeritus of the College of Liberal Arts – California Polytechnic U., et al., The Debater’s Guide, Third Edition, p. 4

The Proposition of Policy: Urging Future Action In policy propositions, each topic contains certain key elements, although they have slightly different functions from comparable elements of value-oriented propositions. 1. An agent doing the acting ---“The United States” in “The United States should adopt a policy of free trade.” Like the object of evaluation in a proposition of value, the agent is the subject of the sentence. 2. The verb should—the first part of a verb phrase that urges action. 3. An action verb to follow should in the should-verb combination. For example, should adopt here means to put a program or policy into action though governmental means. 4. A specification of directions or a limitation of the action desired. The phrase free trade, for example, gives direction and limits to the topic, which would, for example, eliminate consideration of increasing tariffs, discussing diplomatic recognition, or discuscsing interstate commerce. Propositions of policy deal with future action. Nothing has yet occurred. The entire debate is about whether something ought to occur. What you agree to do, then, when you accept the affirmative side in such a debate is to offer sufficient and compelling reasons for an audience to perform the future action that you propose.

### Resolved – Firm Decision

#### Firm decision

AHD 6 (American Heritage Dictionary, http://dictionary.reference.com/browse/resolved)

Resolve TRANSITIVE VERB:1. **To make a firm decision about**. 2. To cause (a person) to reach a decision. See synonyms at decide. 3. To decide or express by formal vote.

Firm Decision

The New Oxford American Dictionary, 2005, "resolution n,” second edition. oxfordreference.com/views/ENTRY.html?subview=Main&entry=t183.e65284

a firm decision to do or not to do something: she kept her resolution not to see Anne any more a New Year's resolution

### Resolved – Immediacy

#### Resolved implies immediacy

**Random House 6** (Unabridged Dictionary, http://dictionary.reference.com/browse/resolve)

**re·solve** Description: Description: thinsp [Audio Help](http://dictionary.reference.com/help/audio.html)   /rɪˈzɒlv/ Pronunciation Key - Show Spelled Pronunciation[ri-zolv] Pronunciation Key - Show IPA Pronunciation verb, -solved, -solv·ing, noun

–verb (used with object)

1. to come to a definite or earnest decision about; determine (to do something): I have resolved that I shall live to the full.

### Resolved – Deliberate

#### Resolved doesn’t require certainty

Webster’s 9 Merriam Webster, 2009, http://www.merriam-webster.com/dictionary/resolved

# Main Entry: 1re·solve # Pronunciation: \ri-ˈzälv, -ˈzȯlv also -ˈzäv or -ˈzȯv\ # Function: verb # Inflected Form(s): resolved; re·solv·ing 1 : to become separated into component parts; also : to become reduced by dissolving or analysis 2 : to form a resolution : determine 3 : consult, deliberate

### Resolved – Opening

#### Resolved means opening possibility for emotive or instrumental response.

Turner and Avison, ‘92 – Harvie Branscomb Chair and Professor of Sociology, Professor of Psychiatry at Vanderbilt and Professor of Sociology at Western (R. Jay and William R. “Innovations in the Measurement of Life Stress: Crisis Theory and the Significance of Event Resolution,” Journal of Health and Social Behavior, Vol. 33, No. 1 (Mar., 1992), pp. 36-50)

Erikson’s (1959) formulation emphasizes the individual’s constant and active inter- course with the environment as crucial for development. Problems are encountered and resolved, with varying degrees of success. Erikson’s use of the term resolved or resolution in describing a successful crisis outcome does not seem to imply that the issue is solved or cleared up. Rather, it refers to a temporary or- enduring positive decision or settling in relation to the personal meanings of the event. For Erikson, a positive balance is achieved between alternative self attitudes that are experienced as senses of how and who one is. The criteria for these senses are “a crisis, beset with fears, or at least a general anxiousness or tension, seems to be resolved, in that the child suddenly seems to ‘grow together’ both psychologically and physi- cally” (Erikson 1959, p. 75). When resolved, the individual may emerge from these engagements with a new skill, conﬁdence, or other enabling self attitude that is added to his or her repertoire of responses or coping mechanisms. This then increases the probabil- ity of success in future encounters. The developmental process thus may involve a synthesizing of new experiences into an evolving self perception and/or the accumulation of skills or strategies for instrumental or emotional response. While Erikson speciﬁcally used the term “vulnerability” to characterize the major corollary of crisis experiences, he implies a meaning that might better be described as openness-openness to both harm and enhancement. This is evident from his contention that personality growth occurs through the resolution of normative crises and hence that the disequilibria which characterize these crises offer potential for forward developmental leaps as well as vulnerability.

## USFG

### USFG – DC

#### The federal government is the central government in DC

Encarta Online 5 http://encarta.msn.com/encyclopedia\_1741500781\_6/United\_States\_(Government).html#howtocite

United States (Government), the combination of federal, state, and local laws, bodies, and agencies that is responsible for carrying out the operations of the United States. The federal government of the United States is centered in [Washington, D.C.](http://encarta.msn.com/encyclopedia_761576320/Washington_D_C.html)

### USFG – 3 Branches

#### USFG is the three branches

The Free Dictionary 4 (Thefreedictionary.com, April 6 2004, DA 6/21/11,)

The executive and legislative and judicial branches of the federal government of the United States

#### USFG is the three branches

USLegal 9(definitions.uslegal.com/u/united-states-federal-government, September 23 2009, DA 6/21/11,)

The United States Federal Government is established by the US Constitution. The Federal Government shares sovereignty over the United Sates with the individual governments of the States of US. The Federal government has three branches: i) the legislature, which is the US Congress, ii) Executive, comprised of the President and Vice president of the US and iii) Judiciary. The US Constitution prescribes a system of separation of powers and ‘checks and balances’ for the smooth functioning of all the three branches of the Federal Government. The US Constitution limits the powers of the Federal Government to the powers assigned to it; all powers not expressly assigned to the Federal Government are reserved to the States or to the people.

### USFG – Not States

#### National gov’t, not the states

Black’s Law 99 (Dictionary, Seventh Edition, p.703)

A national government that exercises some degree of control over smaller political units that have surrendered some degree of power in exchange for the right to participate in national political matters

### USFG – Spec Branches

#### USFG is distinct from states & other national & subnational governments; includes any but not necessarily all 3 branches – Including every branch assumes each branch has similar powers, muddying the term

Wikipedia (http://en.wikipedia.org/wiki/Federal\_government\_of\_the\_United\_States)

The government of the United States of America is the federal government of the constitutional republic of fifty states that constitute the United States, as well as one capital district, and several other territories. The federal government is composed of three distinct branches: legislative, executive and judicial, whose powers are vested by the U.S. Constitution in the Congress, the President, and the federal courts, including the Supreme Court, respectively; the powers and duties of these branches are further defined by acts of Congress, including the creation of executive departments and courts inferior to the Supreme Court.¶ The full name of the republic is "The United States of America". No other name appears in the Constitution, and this is the name that appears on money, in treaties, and in legal cases to which it is a party (e.g., Charles T. Schenck v. United States). The terms "Government of the United States of America" or "United States Government" are often used in official documents to represent the federal government as distinct from the states collectively. In casual conversation or writing, the term "Federal Government" is often used, and the term "National Government" is sometimes used. The terms "Federal" and "National" in government agency or program names generally indicates affiliation with the federal government (e.g., Federal Bureau of Investigation, National Oceanic and Atmospheric Administration, etc.). Because the seat of government is in Washington, D.C., "Washington" is commonly used as a metonym for the federal government.

### USFG – Congress

#### USFG means Congress

**Meador 2** (Dan, Prof of Law @ Univ. of Virginia and former Dean @ Univ. of Alabama School of Law, "The Two United States: Why Federal Law Doesn't Apply To You," <http://famguardian.org/PublishedAuthors/Indiv/MeadorDan/Articles/two_us.htm>)

The United States and the Union of several States party to the Constitution of the United States are constitutional republics. The United States, by way of the Congress of the United States, has certain powers delegated to it by the Constitution. So far as the several States party to the Constitution are concerned, the United States may not exercise power not delegated by the Constitution. All power not delegated to the United States by the Constitution is reserved to the several States within their respective territorial borders, or to the people. However, Congress is solely responsible for governing territory belonging to the United States. This authority is conferred at Article I, Section 8, clause 17 (Art. I § 8.17) and Art. IV § 3.2 of the Constitution. The responsibility for governing territory belonging to the United States is vested solely in Congress, it is not shared by the other two branches of federal government. Congress has absolute or what is described as plenary power - municipal power, police power, etc. So far as its role as government for the several States party to the Constitution is concerned, the United States is an abstraction - it exists on paper only. It takes on physical reality after Congress positively activates constitutionally delegated powers through statutes enacted in accordance with Art. I § 7 of the Constitution. When statutes are in place authoring administrative or judicial activity, the "power" of the United States becomes manifest through people carrying out duties prescribed by law Congress has enacted.

## Should

### Should – Enact a plan

#### Should denotes an expectation of enacting a plan

American Heritage Dictionary 2000 (Dictionary.com)

should. The will to do something or have something take place: I shall go out if I feel like it.

### Should – Mandatory

#### “Should” is mandatory

Nieto 9 – Judge Henry Nieto, Colorado Court of Appeals, 8-20-2009 People v. Munoz, 240 P.3d 311 (Colo. Ct. App. 2009)

"Should" is "used . . . to express duty, obligation, propriety, or expediency." Webster's Third New International Dictionary 2104 (2002). Courts [\*\*15] interpreting the word in various contexts have drawn conflicting conclusions, although the weight of authority appears to favor interpreting "should" in an imperative, obligatory sense. HN7A number of courts, confronted with the question of whether using the word "should" in jury instructions conforms with the Fifth and Sixth Amendment protections governing the reasonable doubt standard, have upheld instructions using the word. In the courts of other states in which a defendant has argued that the word "should" in the reasonable doubt instruction does not sufficiently inform the jury that it is bound to find the defendant not guilty if insufficient proof is submitted at trial, the courts have squarely rejected the argument. They reasoned that the word "conveys a sense of duty and obligation and could not be misunderstood by a jury." See State v. McCloud, 257 Kan. 1, 891 P.2d 324, 335 (Kan. 1995); see also Tyson v. State, 217 Ga. App. 428, 457 S.E.2d 690, 691-92 (Ga. Ct. App. 1995) (finding argument that "should" is directional but not instructional to be without merit); Commonwealth v. Hammond, 350 Pa. Super. 477, 504 A.2d 940, 941-42 (Pa. Super. Ct. 1986). Notably, courts interpreting the word "should" in other types of jury instructions [\*\*16] have also found that the word conveys to the jury a sense of duty or obligation and not discretion. In Little v. State, 261 Ark. 859, 554 S.W.2d 312, 324 (Ark. 1977), the Arkansas Supreme Court interpreted the word "should" in an instruction on circumstantial evidence as synonymous with the word "must" and rejected the defendant's argument that the jury may have been misled by the court's use of the word in the instruction. Similarly, the Missouri Supreme Court rejected a defendant's argument that the court erred by not using the word "should" in an instruction on witness credibility which used the word "must" because the two words have the same meaning. State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958). [\*318] In applying a child support statute, the Arizona Court of Appeals concluded that a legislature's or commission's use of the word "should" is meant to convey duty or obligation. McNutt v. McNutt, 203 Ariz. 28, 49 P.3d 300, 306 (Ariz. Ct. App. 2002) (finding a statute stating that child support expenditures "should" be allocated for the purpose of parents' federal tax exemption to be mandatory).

#### “Should” means must – its mandatory

Foresi 32 (Remo Foresi v. Hudson Coal Co., Superior Court of Pennsylvania, 106 Pa. Super. 307; 161 A. 910; 1932 Pa. Super. LEXIS 239, 7-14, Lexis)

As regards the mandatory character of the rule, the word 'should' is not only an auxiliary verb, it is also the preterite of the verb, 'shall' and has for one of its meanings as defined in the Century Dictionary: "Obliged or compelled (to); would have (to); must; ought (to); used with an infinitive (without to) to express obligation, necessity or duty in connection with some act yet to be carried out." We think it clear that it is in that sense that the word 'should' is used in this rule, not merely advisory. When the judge in charging the jury tells them that, unless they find from all the evidence, beyond a reasonable doubt, that the defendant is guilty of the offense charged, they should acquit, the word 'should' is not used in an advisory sense but has the force or meaning of 'must', or 'ought to' and carries [\*\*\*8] with it the sense of [\*313] obligation and duty equivalent to compulsion. A natural sense of sympathy for a few unfortunate claimants who have been injured while doing something in direct violation of law must not be so indulged as to fritter away, or nullify, provisions which have been enacted to safeguard and protect the welfare of thousands who are engaged in the hazardous occupation of mining.

#### Should means must

Words & Phrases 6 (Permanent Edition 39, p. 369)

C.D.Cal. 2005. “Should,” as used in the Social Security Administration’s ruling stating that an ALJ should call on the services of a medical advisor when onset must be inferred, means “must.”—Herrera v. Barnhart, 379 F.Supp.2d 1103.—Social S 142.5.

### Should – Not mandatory

#### Should isn’t mandatory

Words & Phrases 6 (Permanent Edition 39, p. 369)

C.A.6 (Tenn.) 2001. Word “should,” in most contexts, is precatory, not mandatory. –U.S. v. Rogers, 14 Fed.Appx. 303. –Statut 227.

#### Permissive

Words and Phrases 2 (Vol. 39, p. 370)

Cal.App. 5 Dist. 1976. Term “should,” as used in statutory provision that motion to suppress search warrant should first be heard by magistrate who issued warrant, is used in regular, persuasive sense, as recommendation, and is thus not mandatory but permissive. West’s Ann.Pen Code, § 1538.5(b).---Cuevas v. Superior Court, 130 Cal. Rptr. 238, 58 Cal.App.3d 406 ----Searches 191.

#### Desirable or recommended

Words and Phrases 2 (Vol. 39, p. 372-373)

Or. 1952. Where safety regulation for sawmill industry providing that a two by two inch guard rail should be installed at extreme outer edge of walkways adjacent to sorting tables was immediately preceded by other regulations in which word “shall” instead of “should” was used, and word “should” did not appear to be result of inadvertent use in particular regulation, use of word “should” was intended to convey idea that particular precaution involved was desirable and recommended, but not mandatory. ORS 654.005 et seq.----Baldassarre v. West Oregon Lumber Co., 239 P.2d 839, 193 Or. 556.---Labor & Emp. 2857

### Should – Immediate

#### “Should” means “must” and requires immediate legal effect

Summers 94 (Justice – Oklahoma Supreme Court, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13)

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling *in praesenti*.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record.[16](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn16)

[CONTINUES – TO FOOTNOTE]

[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) *In praesenti* means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is *presently* or *immediately effective*, as opposed to something that *will* or *would* become effective *in the future [in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

### Should – Not immediate

#### Should doesn’t mean immediate

Dictionary.com – Copyright © 2010 – http://dictionary.reference.com/browse/should

should    /ʃʊd/ Show Spelled[shood] Show IPA –auxiliary verb 1. pt. of shall. 2. (used to express condition): Were he to arrive, I should be pleased. 3. must; ought (used to indicate duty, propriety, or expediency): You should not do that. 4. would (used to make a statement less direct or blunt): I should think you would apologize. Use should in a Sentence See images of should Search should on the Web Origin: ME sholde, OE sc ( e ) olde; see shall —Can be confused:  could, should, would (see usage note at this entry ). —Synonyms 3. See must1 . —Usage note Rules similar to those for choosing between shall and will have long been advanced for should and would, but again the rules have had little effect on usage. In most constructions, would is the auxiliary chosen regardless of the person of the subject: If our allies would support the move, we would abandon any claim to sovereignty. You would be surprised at the complexity of the directions. Because the main function of should in modern American English is to express duty, necessity, etc. ( You should get your flu shot before winter comes ), its use for other purposes, as to form a subjunctive, can produce ambiguity, at least initially: I should get my flu shot if I were you. Furthermore, should seems an affectation to many Americans when used in certain constructions quite common in British English: Had I been informed, I should (American would ) have called immediately. I should (American would ) really prefer a different arrangement. As with shall and will, most educated native speakers of American English do not follow the textbook rule in making a choice between should and would. See also shall. Shall –auxiliary verb, present singular 1st person shall, 2nd shall or ( Archaic ) shalt, 3rd shall, present plural shall; past singular 1st person should, 2nd should or ( Archaic ) shouldst or should·est, 3rd should, past plural should; imperative, infinitive, and participles lacking. 1. plan to, *intend* to, or expect to: I shall go later.

### Should – Desirable

#### “Should” means desirable --- this does not have to be a mandate

AC 99 (Atlas Collaboration, “Use of Shall, Should, May Can,” http://rd13doc.cern.ch/Atlas/DaqSoft/sde/inspect/shall.html)

shall

'shall' describes something that is mandatory. If a requirement uses 'shall', then that requirement \_will\_ be satisfied without fail. Noncompliance is not allowed. Failure to comply with one single 'shall' is sufficient reason to reject the entire product. Indeed, it must be rejected under these circumstances. Examples: # "Requirements shall make use of the word 'shall' only where compliance is mandatory." This is a good example. # "C++ code shall have comments every 5th line." This is a bad example. Using 'shall' here is too strong.

should

'should' is weaker. It describes something that might not be satisfied in the final product, but that is desirable enough that any noncompliance shall be explicitly justified. Any use of 'should' should be examined carefully, as it probably means that something is not being stated clearly. If a 'should' can be replaced by a 'shall', or can be discarded entirely, so much the better. Examples: # "C++ code should be ANSI compliant." A good example. It may not be possible to be ANSI compliant on all platforms, but we should try. # "Code should be tested thoroughly." Bad example. This 'should' shall be replaced with 'shall' if this requirement is to be stated anywhere (to say nothing of defining what 'thoroughly' means).

#### “Should” doesn’t require certainty

**Black’s Law 79** (Black’s Law Dictionary – Fifth Edition, p. 1237)

Should. The past tense of shall; ordinarily implying duty or obligation; although usually no more than an obligation of propriety or expediency, or a moral obligation, thereby distinguishing it from “ought.” It is not normally synonymous with “may,” and although often interchangeable with the word “would,” it does not ordinarily express certainty as “will” sometimes does.

## Its

#### Its is possessive and requires ownership

**Glossary of English Grammar Terms, 2005**

(http://www.usingenglish.com/glossary/possessive-pronoun.html)

Mine, yours, his, hers, its, ours, theirs are the possessive pronouns used to substitute a noun and to show possession or ownership. EG. This is your disk and that's mine. (Mine substitutes the word disk and shows that it belongs to me.)

#### “Its” means belonging to it

**Oxford English Dictionary 14** http://www.merriam-webster.com/dictionary/its

Its

A. As adj. poss. pron. Of or belonging to it, or that thing (L. ejus); also refl., Of or belonging to itself, its own (L. suus).

## Topicality Impacts

### Topic Education

#### Simulating international agents is key to topic education. Literature consensus shows.

Shellman and Turan 2006 [Stephen M., and Kürşad Turan. "Do simulations enhance student learning? An empirical evaluation of an IR simulation." *Journal of Political Science Education* 2, no. 1 (2006): 19-32.]

Our simulation includes many international organizations such as the World Bank, the UN Security Council, the Arab League, NATO, the European Union, Amnesty International, etc. Most students are involved in or connected to an inter- 285 national organization in some way or another, whether it is indirectly through a mutual group international organization representative or directly as the Secretary General of NATO. By the end of the simulation we feel and the results infer that students can identify with the problems international organizations address, the processes that govern at least one of the organizations included, and the constraints that 290 are placed on countries’ sovereignty. We find that **students also feel that the simulation enhances knowledge of international organizations and their processes.** In contrast, the modal value is equal to four for theoretical enhancement. These results convey that **while the simulation enhances knowledge in all three areas, it does a better job enhancing the knowledge of concepts and organizations and their** 295 **processes than IR theories**. Perhaps assigning discussion papers and asking more theoretically based questions during the debriefing could bring this number up. Moreover, some of the theories we cover in class have a domestic basis like Fearon’s (1994) audience cost model and Milner’s (1997) domestic institutions and interest groups based theoretical framework. The simulation, at the present time, unfortu- 300 nately lacks proper mechanisms to apply such theories to decisions, processes, and outcomes and to analyze their utility. Thus, the simulation constraints may explain why the modal value for theories is four and not five. That said, overall, we find support that the simulation enhances knowledge of substantive course material. The results fit with Brown and King (2000) who find 305 that **students’ knowledge of international relations increases as a result of participating in the International Communications and Negotiations Simulations** (ICONS).12 Also relevant are the results from Kumza and Haney (2001). They show that the use of film in a U.S. Foreign Policy summer course to stimulate active learning works. Using self-assessment surveys, Kumza and Haney (2001) show that students’ 310 increase their knowledge of U.S. foreign policy through films, discussions, and written exercises. Our results are consistent with those discussed above in that they support the hypothesis that active learning exercises enhance learning. Both the modal and median values calculated for country=organization enhancement are equal to five. More than 90% of the students stated that the simu- 315 lation enhanced knowledge of their assigned country or organization at a level four or above on the five-point intensity scale. This finding is consistent with Brown and King (2000) who found that participation in ICONS enhanced knowledge of the country assigned and U.S. foreign policy**. In a typical introductory international relations course, professors rarely expose students to characteristics of particular** 320 **countries and or their current foreign policies. Our simulation forces students to research a particular country’s foreign policy or a particular international organization’s rules, history, and structure. In order to actively engage in the exercise, one needs to know what to talk about, who to talk to, and what to offer and not to offer in order to get what one wants.** The research assignment can be eye-opening to many 325 students who are unfamiliar with international relations, particular countries, their foreign policies, and their regional affairs. We infer from our data that the simulation enhances students’ knowledge of particular countries and=or organizations. In terms of critical and analytical thinking skills, over 74% reported enhancement levels at four or above for question 6. This supports the hypothesis that our 330 simulation aids in the development of critical and analytical thinking skills. Our simulation compels students to make their own decisions and anticipate and=or react to the consequences. For example, students in the past have created fake Yahoo e-mail accounts using the instructor’s name and have used it to gather information from other groups. Another individual used her friendship with the head terrorist’s 335 roommate to acquire information about the terrorists operations. These are some of the more intelligent and sneaky tactics students innovate and implement during the simulation. The students ultimately create solutions to resolve international problems given constraints placed on their countries and organizations. These are skills that are difficult to teach by reading and lecturing. Rather, we argue that simulation 340 is the best method for teaching such skills, because students are confronted with novel problems and they are forced to experiment with strategies and tactics to accomplish them. Then, they are able to learn from their successes as well as their failures. Our finding is consistent with Leonard and Leonard (1995) who found that business school graduates believed courses involving simulation exercises prepared 345 them better for their future jobs than courses that only used case methods. We want to produce professionals in all fields who can analyze and solve novel problems, and the survey results suggest that our simulation develops these skills.

#### Standard – Clarity

Myshak 2018 Elena. "DEFINITION OF THE TERM “BIOTECHNOLOGY”." *Cogito-Multidisciplinary research Journal* 4 (2018): 142-149.

As we can see from a small number of examples, the term biotechnology is by no means unambiguous, and the reason lies not only in the difference in the wording and its prevalence, but also in the selection of the relevant features of the concept when creating the definition. In most of the definitions, the definition is based on the use of living organisms or their components for the production of products designed to improve the quality of life of people. Other definitions emphasize that biotechnology is a technology that combines biology and technology that uses biological systems, living organisms or their fragments to develop or create various products. In almost all definitions, the idea of the benefits of biotechnology is expressed, namely: biotechnology is used to obtain useful products for society with the help of biological agents of microorganisms, viruses, animal and plant cells; creating useful products (from drugs to industrial enzymes); to improve plants or animals; to solve engineering and industrial problems, etc. It should be noted that almost all definitions have a different nuclear seme or genus and species trait: science (science); technology; manipulation; techniques; use; area. Such differences in the definition of the key term of the biotechnology sphere confirm the proposition that the definitions of concepts in any science are temporary and, depending on the development of the latter, can be transformed. So, **in the presented examples of the definition of one term “biotechnology”, we tried to demonstrate the diversity of definitional variations of the term in its static (vocabulary) manifestation at the initial stage of the formation of terminology,** i.e. on the way to the formation of the term system. **This fact indicates the dynamic structure of the term, the development of the denotation, the concept and signification. The terminology of biotechnology is not fully formed and needs to be standardized in order to provide the recipient with information about the concept reflected in the definition.**

### Switching Sides Good

#### Switch Side Debate builds critical thinking skills which are key to foster democratic values and prevent extinction.

**Harrigan 08 [(Casey, Master of Arts in the Department of Communications at Wake Forest University) “A Defense of Switch Side Debate”, 2008,** [**http://wakespace.lib.wfu.edu/bitstream/handle/10339/14746/harrigancd\_05\_2008.pdf**](http://wakespace.lib.wfu.edu/bitstream/handle/10339/14746/harrigancd_05_2008.pdf)**]**

While such pragmatic justifications for SSD are persuasive, they are admittedly secondary to the greater consideration of pedagogy. Although it is certainly true that debate is a game and that its competitive elements are indispensable sources of motivation for students who are otherwise apathetic about academic endeavors, **the overwhelming benefits of contest debating are the knowledge and skills taught through participation. The wins and losses (and marginally-cheesy trophies)**, by and large, are quickly forgotten with the passage of time**. However, the educational values of debate are so fundamental that they eventually become ingrained in the decision-making and thought processes of debaters, giving them a uniquely valuable durability. To this end, SSD is essential.** The benef its of debating both sides have been noted by many authors over the past fifty years. To name but a few, **SSD has been lauded for fostering tolerance and undermining bigotry and dogmatism** (M uir, 1993), **creating stronger and more knowledgeable advocates** (Dybvig and Iversion, 2000) , **and fortifying the social forces of democracy by guaranteeing the expression of minority viewpoints** (Day, 1966). **Switching sides is a crucial element of debate’s pedagogical benefit; it forms the gears that drive debate’s intellectual motor. Additionally, there are social benefits to the practice of requiring students to debate both sides of controversial issues.** Dating back to th e Greek rhetorical tradition, **great value has been placed on the benefit of testing each argument relative to all others in the marketplace of ideas.** Like those who argue on behalf of the efficiency-maximizing benefits of free market competition, it is believed that **arguments are most rigorously tested (and conceivably refined and improved) when compared to all available alternatives. Even for beliefs that have seem ingly been ingrained in consensus opinion or 7 in cases where the public at-large is unlikely to accept a particular position, it has been argued that they should remain open for public discussion and deliberation** (Mill, 1975). **Along these lines, the greatest benefit of switching sides, which goes to the heart of contemporary debate, is its inducement of critical thinking**. Defined as “reasonable reflective thinking that is focused on decidi ng what to believe or do” (Ennis, 1987, p. 10), **critical thinking learned through debate teaches students not just how to advocate and argue, but how to decide as well. Each and every student, whether in debate or (more likely) at some later point in life, will be placed in the position of the decision-maker. Faced with competing options whose costs and benefits are initially unclear, critical thinking is necessary to assess all the possible outcomes of each choice, compare their relative merits, and arrive at some final decision about which is preferable.** In some instances, such as choosing whether to eat Chinese or Indian food for dinner, the im portance of making the correct decision is minor. For many other de cisions, however, the implications of choosing an imprudent course of action are pot entially grave. As Robert Crawford notes, there are “issues of unsurpassed importance in the daily lives of millions upon millions of people...being decided to a considerable extent by the power of pub lic speaking” (2003). Although the days of the Cold War are over, and the risk that “the next Pearl Harbor could be ‘compounded by hydrogen’” (Ehninger and Brockriede, 1978, p. 3) is greatly reduced, **the manipulation of public support before the invasion of Iraq in 2003 points to the continuing necessity of training a well-in formed and critically-aware public** (Zarefsky, 2007). **In the absence of debate-trained critical thinking, ignorant but ambitious politicians and persuasive but nefarious leaders would be much more likely to draw the country, and possibly the world, in to conflicts with incalculable losses in terms of human 8 well-being. Given the myriad threats of global proportions th at will require incisive solutions, including global warming, the spread of pandemic diseases, and the proliferation of weapons of mass destruction, cultivating a robust and effective society of critical decision-makers is essential.** As Louis Rene Beres writes, “with such learning, we Americans could prepare...not as immobilized objects of false contentment, but as authentic citizens of an endangered planet” (2003 ). Thus, it is not surprising that critical thinking has been called “the highest edu cational goal of the ac tivity” (Parcher, 1998). **While arguing from conviction can foster limited critical thinking skills, the element of switching sides is necessary to sharpen debate’s critical edge and ensure that decisions are made in a reasoned manner instead of being driven by ideology. Debaters trained in SSD are more likely to evaluate both sides of an argument before arriving at a conclusion and are less likely to dismiss potential arguments based on his or her prior beliefs** (Muir 1993). In addition, debating both sides teaches “conceptual flexibility,” where decision-makers are more likely to refl ect upon the beliefs that are held before coming to a final opinion (Muir, 1993, p. 290) . Exposed to many arguments on each side of an issue, debaters learn that public policy is characteri zed by extraordinary complexity that requires careful consideration before action. **Finally, these arguments are confirmed by the preponderance of empirical research demonstrating a link between competitive SSD and critical thinking** (Allen, Berkow itz, Hunt and Louden, 1999; Colbert, 2002, p. 82). The theory and practice of SSD has value beyond the limited realm of competitive debate as well. For the practitioners a nd students of rhetoric, understanding how individuals come to form opini ons about subjects and then a ttempt to persuade others is 9 of utmost importance. Although the field of communication has established models that attempt to explain human decision-making, such as the Rational Argumentation Theory and others (Cragen and Shields, 1998, p. 66) , the practice of SSD within competitive debate rounds is a real-world laboratory wh ere argumentative experiments are carried out thousands of times over during the course of a single year-long season. **The theory of SSD has profound implications for those who study how individuals are persuaded, as well as how advocates should go about the process of forming their own personal beliefs and attempting to persuade others.**

### Reasonability/Competing Interps

#### Use reasonability it ensures access to the 1AC and prevents teams from arbitrarily going for T to exclude Affs solidly grounded in lit.

Ryan ‘4

(Andrew B. Ryan, college debater, Wake Forest University, 2004, Reviving Reasonability. The Debaters’ Research Guide, 2004. groups.wfu.edu/debate)

How should the affirmative initiate a discussion about the quality of debate? First, start by defending your own ground. The resolution gives both teams a reasonable expectation of what is topical and affirmatives choose their plan accordingly. The affirmative has a qualified right to their reasonable expectation of the topic: how can affirmatives choose plans if they cannot rely on definitions they have researched that support its topicality? This right isn’t unlimited, however, because the negative is encouraged to debate the affirmative on whether their interpretation of words is supported by grammar, common usage, field context, etc. But, the negative’s right to re-interpret the topic should be limited to consistent and predictable interpretations. Resorting to arbitrary interpretations based on illogical catchphrases unfairly allows the negative to pull the rug out from under the affirmative. Second, affirmatives should talk about what makes a good definition. Are dictionary definitions best? Possibly, as long as you are not dealing with a term of art, such as peacekeeping. What about field context? Shouldn’t a definition of peacekeeping by the head of U.N. Peacekeeping Operations be given more weight than a dictionary definition? Lastly, defining a word in a certain way may be the only way to maintain the grammatical integrity of the resolution. Take the discussion of definitions to another level: move past superficial quantitative discussions of limits and speak directly to the educational benefits and disadvantages of each side’s definition. Third, don’t be afraid to talk about debate’s purpose. It is a competitive game, but one that should always be based on reason and logic. If what a team does enables illogical arguments to determine the outcome of the debate, then regardless of what unlimited topic the affirmative may allow, it is still better to vote affirmative than eschew reason. Reasonability is important because strict adherence to comparing competing interpretations based on offense/defense types of theories allows the negative to the make the perfect the enemy of the good. Fourth, a reasonability paradigm would help affirmatives to redefine the role of the judge. One of the central negative objections to reasonability interpretations is that they encourage judge intervention because the judge is left without a coherent standard to determine which interpretations are best. Affirmatives can flip this argument on the negative, however, by arguing that the offense/defense and competing interpretations paradigm exceeds the jurisdictional role of the judge. Traditionally, negatives argued that jurisdiction was a voting issue because judges could not vote to endorse a non-topical affirmative. The negative age calls for a judge to act as an arbiter of competing interpretations. That exceeds the role of the judge, however, because the negative is no longer demonstrating the affirmative is non-topical; rather they are only demonstrating that an interpretation that excludes the affirmative is comparatively better for debate. Topicality is a gateway issue which is meant to ensure that both sides have adequate ground for debate: if both interpretations provide similar quantity and quality of ground, then judges should dispense with topicality and allow the policy debate to begin.

#### Reject the argument, not the team

Solt ‘2

(Roger E. Solt, Debate Coach at the University of Kentucky, “Theory as a Voting Issue: The Crime of Punishment”, 2002 - Mental Health Policies: Escape from Bedlam?, 2002, http://groups.wfu.edu/debate/MiscSites/

DRGArticles/DRGArtiarticlesIndex.htm)

First, the attempt to achieve favorable time tradeoffs is a ubiquitous practice in current debate. It is behind the practice of making multiple answers to a given argument. It strongly influences the number of positions the negative team will advance in the 1NC. It is behind the decision to start all of the major negative positions in the 1NC. It dictates how many positions will be extended through the block. It generally controls the decision about whether or not the affirmative should “straight turn” one or more disadvantages. Even the employment of punishment arguments is generally based on the desire to secure a favorable time exchange. It seems silly to single out a few particular instances of this universal practices and say that they are voting issues, when the whole of debate is saturated with strategic time considerations. Second, forcing teams to make strategic choices does have educational value. Debaters are forced to judge which their best arguments are and be selective about what they will extend. Third, punishment arguments constitute a self-inflicted coverage injury. It takes time, sometimes considerable time, to argue that a certain approach has distorted your time allocation. If debaters didn’t defend punishment, they would have more time to answer other arguments. Fourth, time skews are often minimal. It is quite common for an issue which occupied literally seconds of the debate to still be tagged as a voting issue. In cases like this, the overall integrity of the round would certainly be maximized by simply rejecting the particular argument rather than the team that made it. Fifth, teams defending a problematic theory almost always invest some time in advancing that position and in extending it. Time spent answering the time skew argument serves to redress the injury. Sixth, there are other means of redress rather than the ballot. If some other issue was radically undercovered due to the alleged time skew, the judge could allow new answers on that issue. Finally, seventh, time skew arguments directed against the affirmative seem especially dubious. The structure of the debate places particular time pressures on the affirmative. The luxury of the negative block should give the negative ample time to answer pretty much whatever the 2AC says. (New 1AR answers do pose a different and more legitimate concern from the standpoint of time allocation issues.)

#### Default to reasonability competing interpretations compromises substantive discussion – 6 warrants

Solt ‘2

(Roger E. Solt, Debate Coach at the University of Kentucky, “Theory as a Voting Issue: The Crime of Punishment”, 2002 - Mental Health Policies: Escape from Bedlam?, 2002, http://groups.wfu.edu/debate/MiscSites/

DRGArticles/DRGArtiarticlesIndex.htm)

The first main argument I would make against punishment is that it exaggerates theory. One view of debate is that it is just a game and that theory is as worthwhile to debate as anything else. In contrast is the view that I would defend: that debate has a substantive intellectual content which it is far more worthwhile to learn about than it is to learn about debate theory. Debate teaches us a great deal about current events and principles of policy analysis, about political theory, political philosophy, and practical politics, about medicine and law, ethics and epistemology. It teaches both problem solving and the criticism of underlying assumptions. And it teaches many other things as well. People disagree about which of these areas of inquiry is most important, but any and all of these subjects are of more intrinsic significance than debate theory. I write this as someone who finds debate theory interesting. Nor do I think that we can get along without debate theory. Nor should we. Theory is basically a set of meta-arguments, arguments about arguments and about the standards for argument. We could set these standards by authoritative edict (a rulebook) or by convention. But on many theory questions there is widespread disagreement and hence no dominant convention. And in the absence of a prevailing convention there is unlikely to be an authoritative rulebook which could be adopted or accepted. We have come, over the past quarter of a century, to think that these are things which debaters can and should argue about. And I accept this general outlook. But even if we neither want to nor can entirely avoid theory argument, it should not be a central focus of the activity. Yet this is precisely what punishment argument make it. Rather than the criteria for the evaluation of arguments, theories come to be ends in themselves, the pivotal issues on which the debate centrally turns. This seems misguided. The knowledge gained in debate has many uses in later life, but surely the least useful body of knowledge which debate teaches is debate theory. For those of us who stay in the activity for a long time, it is interesting. We want to sort out in a consistent and satisfying way the principles of our activity. But that still does not make it a very intrinsically important body of knowledge. I think that we sometimes confuse debate theory with argument theory. I am not arguing that argumentation is not a valid and useful field of thought. And argument theory may intersect with what we commonly think of as “debate theory” at a variety of points. But the vast bulk of debate theory, as argued in competitive debate rounds, really just involves what are appropriate conventions for this particular activity—a contest, sponsored by educational institutions, with a certain format and certain conventions. Are conditional counterplans legitimate? Are plan inclusive counterplans legitimate? Are international counterplans legitimate? Should we assume that the “fiat” of the affirmative plan comes immediately or only after a normal implementation process? Must the affirmative specify an agent? These are the staples of debate theory argument. Especially they are the kinds of issues which most invoke punishment claims. And none of them has particular salience outside the framework and format of contest debate. Of course, it is possible to relate some of these arguments to intellectual controversies beyond competitive debate. For example, a focus on international institutions distinguishes liberalism from realism as foreign policy paradigms. But the debate over international fiat does not draw very heavily on this paradigmatic controversy. And our arguments within competitive debate over the propriety of international fiat does next to nothing to illuminate the liberalism/realism debate within international relations. Arguments over debate theory are reminiscent of the debates of the medieval scholastic philosophers. Rather than arguing about how many angels can dance on the head of pin, we argue about how many intrinsicness arguments can dance on the head of a conditional counterplan. To Aquinas and company, the relationship of pins and angels was interesting and meaningful. Questions of fiat and conditionality matter to us. But only within the narrower confines of the academic debate activity. Once you leave debate, these issues won’t matter to you. So if the focus on punishment serves to make these kinds of arguments more central and other, more exportable forms of knowledge more marginal, then punishment does an intellectual disservice to the students debate is intended to teach. My second main argument is that, empirically, punishment arguments produce bad, anti-educational debate. Punishment arguments are almost always made badly. They are simply tag lines, especially at the impact level. (“This is a voting issue for reasons of fairness and education.”) There are two dominant incentives for labeling an objection to a given theory or practice a voting issue. The first is the “cheap shot” motive. The “independent voter” may get lost in the shuffle, and you may come out with an easy win. I doubt that anyone really thinks that this process of learning to “out tech” your opponent is an important part of debate’s educational mission. Second, by labeling an argument a voting issue, debaters hope of secure a favorable time tradeoff. If an argument is a voting issue, it has to be taken more seriously, even if it is not intrinsically of much substantive importance. Again, in this instance, the punishment argument serves as an element in the tactics of time tradeoff. This is part of the debate game, but it is not a very important part of what debate should teach. As extended, punishment arguments again tend to be a series of tag lines. This is generally true in the negative block, and it is almost always true (because of intense time pressures) in the 1AR and 2NR. If the 2AR chooses to go for a punishment argument, s/he may be more articulate and explanatory. But this generally means that a lot of new arguments are being made, or at least being given flesh from the bare skeleton of assertion, and this raises fairness concerns of its own. Of course, some theory debates are better than others. And I can imagine a world in which theory is debated more clearly and coherently than it generally is in the world of contemporary debate. But the experience of a quarter century of theory debates does not encourage me to think that we will enter that Promised Land any time soon. And “better” theory debates would have to occur in a more thorough and time-consuming fashion than those which occur today. And this would exaggerate the problem of diverting time from more substantive intellectual concerns. My third argument is that the punishment of voting on theory is almost always disproportionate. To me this seems almost true by definition. Someone advances a “bad” argument. They lose that argument. It is not a decisive argument in terms of the substantive logic of the debate, be that a policy logic, a discursive logic, or a critical logic. But instead of just losing that argument, with whatever logical, limited impact that may have in the round, the team which advanced the “bad” argument suddenly is supposed to lose the whole debate. In other words, every other issue in the round, all of the policy arguments, all of the critical arguments, all of the discursive arguments become moot. They no longer matter and they need not be resolved because one theory argument has been lost. Beyond my intuitive sense that this is disproportionate, I have two other arguments for why voting on theory is excessive. First, the theories debaters most want to punish are not really that egregious. Punishment claims are most commonly raised against the following practices: conditional counterplans, partially plan inclusive counterplans, permutations against kritiks, extra-topical plan planks, non-specification of agent by the affirmative, and a range of affirmative and negative fiat issues. I personally favor some of these positions, and I oppose others. But I recognize that there are “pretty good” arguments in favor of both sides with regard to all of these issues. In other words, they are all, relatively speaking, “close calls.” Or, to put it still another way, there are thoughtful members of the competitive debate activity for whom each of these practices makes sense and others for which they do not. On none of these issues is there a theoretical consensus. And all have been widely employed without “destroying debate.” This is not to say that these practices are not fair game for argument. They are. But none is so abusive within the context and conventions of debate as we know it that it needs to be an automatic voting issue. Losing the argument ought to be punishment enough. Nor do we need punishment to deal with theories which the consensus of the activity rejects. The difficulty of winning on counterwarrants or alternative justifications or plan/plan has easily been enough to discourage these practices. Second, the debate over a given theory issue is, by the end of the round, generally close. Each team has its list of brief, blippy reasons to prefer one theory stance or another. Typically, the two lists are opposed to each other, via a process of grouping, and without clear, on-point clash. Usually both sides drop one or more arguments made by their opponents. So again, typically speaking, judges can almost always find grounds to resolve a given theory debate either way, and they generally do so based on their own biases. In this situation, it once again seems to be enough that one side is penalized by losing the particular theory position. A slight edge to one team over the other shouldn’t translate into the critical issue in the round. This is especially true when, as is often the case, the particular theory issue at stake has occupied a fairly small percentage of the total time which the debate occupied. My fourth major argument against punishment is that it is intolerant. All judges have biases which they are only partially successful at screening out. And perhaps oddly, judges often seem less able to set aside their theory biases than their biases on substantive issues. As I noted above, judges can generally justify voting either way on a given theory argument in most rounds. At least if both sides are putting up a decent fight, this is the case. If a position is conceded, most judges will behave accordingly, though even here there are exceptions. And sometimes there will be such a clear preponderance of argument that judges are unable to find their way back to their own theory predispositions. But with two reasonably skilled teams, it is generally possible to resolve a given theory issue either way, so most judges, most of the time, end up endorsing the theory position which they prefer. This may be an unfortunate fact about judges, and it certainly applies to some judges more than to others, but it is a real tendency. It is hardly controversial to say that judges have biases. But the problem with punishment, in light of this fact, is that voting on theory empowers those biases. Instead of creating a strategic slant, the bias becomes all-decisive. What we should recognize, I think, is that different people can and do legitimately hold different concepts of what debate should be about. If one side appeals to our theory preferences and the other side does not, it is not unreasonable to expect that the side whose views we embrace will win the debate over a particular issue more often. But it is intolerant to rule the other side completely out of order, to decide the whole debate based on this one issue, just because they have gotten on the wrong side of one of our theoretical predispositions. A fifth problem with punishment is its arbitrariness. Punishment aims at abusive practices. But abuse clearly falls on a continuum. And the line at which sufficient abuse exists to justify a ballot is inevitably arbitrary. Is a ten second time distortion enough to vote on? A ten-minute time distortion? Or where in between? This situation is further complicated by the fact that one never knows just how the team invoking punishment would have allocated its time absent the problematic practice. Claims that they had wonderful arguments which time constraints prevented them from running should be viewed with a good deal of skepticism. Sometimes arbitrary lines must be drawn. But especially when debate’s equivalent of the death penalty is involved, that arbitrariness should occasion concern. My final argument is that punishment snowballs. Once the punishment paradigm is embraced, a likely consequence is what Ross Smith has called “voting issue proliferation.” Anything can be labeled as a voting issue. And, indeed, the use of theory as a voting issue has helped to create a class of debate “cheap shot artists” who systematically employ punishment strategies. Losing on cheap shots is infuriating for debaters and coaches, and it is frustrating for many judges to vote on them. They certainly don’t make debate a more educational activity. And the teams and debaters who rely on them the most are probably the biggest losers in educational terms.

#### Competing interpretations is key to deterring future abuse and rectify in round unfairness.

Solt ‘2

(Roger E. Solt, Debate Coach at the University of Kentucky, “Theory as a Voting Issue: The Crime of Punishment”, 2002 - Mental Health Policies: Escape from Bedlam?, 2002, http://groups.wfu.edu/debate/MiscSites/

DRGArticles/DRGArtiarticlesIndex.htm)

In Sigel 1, there are four major arguments presented in favor of punishment. The first argument was fairness. Certain theories and practices were said to be unfair to opposing debaters. And it is not enough just to reject these practices; they may so skew the round that only voting against the team which employed them can redress competitive equity. The second argument was education. Sigel invoked the view that the judge should serve as an educator. Part of his or her role as an educator is to discourage bad arguments. Unfair theories and tactics may also serve to undercut the educational quality of the debate experience. The third argument was deterrence. Losing debates, Sigel argued, is a powerful inducement for people to change their ways. Debaters are, for the most part, rational animals, and they will respond to strong competitive incentives. Sigel’s fourth rationale for punishment was argument responsibility. Punishment with the ballot makes debaters highly responsible for their arguments. And debate, he claimed, should teach debaters to argue responsibly.

#### Reasonability collapses into competing interpretations, if we win our interp creates a better topic than theirs should be considered unreasonable.

Mancuso ‘82

(Steve Manusco, Debater for University of Kentucky, Wake Forest University, 1982, Topicality: In Search of Reason. The Debaters’ Research Guide, groups.wfu.edu/debate)

In recognition of the many possible definitions of a word, the debate community has adopted (original mother and father unknown) the convention that the affirmative definition only needs to be "reasonable." This burden traditionally stands opposed to the notion that the affirmative must have the best definition of a word, or even necessarily a better definition than the negative. While the initial theoretical underpinnings for such a convention are far from clear, it must certainly he justified on the grounds that it promotes the objective of quality debating. Such a convention recognizes that a definition is not right or wrong, but merely acceptable or unacceptable in a given situation. In situations where broad interpretations of a topic are desirable, a broader-than usual definition may be reasonable, and where a narrow interpretation is desirable, narrow definitions may be reasonable. Such a simplified view of reasonability is not justified in the face of the recent uses and abuses of such a convention. The relevant question is: What does it mean to be reasonable? Again, courts and legislators may have their own definitions of "reasonable," but they may not be at all useful for the functioning of the term in debate. To state that a court has been unable to define the word "reasonable" only means that in that particular context it was difficult, not that such a finding should be accepted as proof that we cannot come up with a workable concept of reasonability for our purposes. Of course, someone who has listened to a few debates concerning "reasonability" may find great sympathy with such a court the concept has taken on very diverse forms, to say the least, in its varied uses. On one extreme, teams have argued that as long as they were not "absurd" in defining their terms, they were reasonable, and some teams have argued that because their definition *exists* they are some how reasonable. On the other end of the definitional continuum, some interpretations of reasonability have been very restrictive. Some teams have argued that only the best definition is reasonable--that it shows little reason to accept an inferior definition. Clearly there has been quite a bit of disagreement as to what is entailed by a "reasonable" definition. Some debate critics have responded to this dispute by throwing up their arms and calling for the abandonment of the concept of reasonability as a topicality convention altogether. While it is very easy to respect and have empathy with such sentiment, it seems prudent to attempt a less radical solution by constructing a more useful and practical convention of reasonability without ""piffing" the concept in its entirety. I would suggest two steps in construction of a workable reasonability convention. First, we must agree upon what makes a definition acceptable. Keeping in mind the goal of high quality debating, two criteria necessary for an acceptable definition should be (1) Does it tend toward focusing debates on timely and relevant policy advocacy? and (2) does it allow the negative sufficient ability to be prepared in both analysis and research? A definition which failed to meet either of these goals would not seem to he an acceptable approach to interpretation. Secondly, the actual debate over topicality should center on the question of whether or not the affirmative interpretation actually did meet both of these criteria. In this sense, the "threshold" for when a definition became "reasonable" would be raised well above the currently less rigorous approaches, yet not overly restrict the affirmative initial and presumptive right to define its terms. The burden would be on the affirmative to explain, wren challenged, the implications of its definition, thus reviving the concept of an affirmative burden on topicality, without making the burden prohibitively heavy by making them refute any conceivable negative alternative definition. In an effort to supplement the convention of "reasonability," "standards" of definition have been offered which the affirmative should meet in order to be considered reasonable. These standards could potentially be used to discern whether or not the affirmative approach met the above two criteria.

### Depth/Breadth/Limits

#### Depth outweighs breadth.

Tai et al ‘8

Tai et al 08 [(Robert) Curriculum, Instruction, and Special Education Department, Curry School of Education) “Depth Versus Breadth: How Content Coverage in High School Science Courses Relates to Later Success in College Science Course work” 2008]

The baseline model reveals a direct and compelling outcome: teaching for depth is associated with improvements in later performance. Of course, there is much to consider in evaluating the implications of such an analysis. There are a number of questions about this simple conclusion that naturally emerge. For example, ho w much depth works best? What is the optimal manner to operationalize the impact of depth-based learning? Do specific contexts (such as type of student, teacher, or school) moderate the impact of depth? The answers to these questions certainly suggest that a more nuanced view should be sought. Nonetheless, this analysis appears to indicate that a robust positive association exists between high school science teaching that pro v ides depth in at least one topic and better performances in introductory postsecondary science courses. Our results also clearly suggest that breadth-based learning, as commonly applied in high school classrooms, does not appear to offer students any advantage when they enroll in introductory college science courses, although it may contribute to higher scores on standardized tests. However, the intuitive appeal of broadly surveying a discipline in an introductory high school course cannot be overlooked. There might be benefits to such a pedagogy that become apparent when using measures that we did not explore. The results regarding breadth were less compelling because in only one of the three disciplines were the results significant in our full model. On the other hand, we observed no positive effects at all. As it stands, our findings at least suggest that aiming for breadth in content coverage should be avoided, as we found no evidence to support such an approach.

#### Limits are k2 clash and in depth discussion.

**Hardy 10**

(Aaron T. Hardy, Coach at Whitman College, “CONDITIONALITY, CHEATING COUNTERPLANS, AND CRITIQUES: TOPIC CONSTRUCTION AND THE RISE OF THE “NEGATIVE CASE””, Contemporary Argumentation & Debate, 2010, pg. 44-45, [http://www.cedadebate.org/cad/index.php/CAD/article/view File/271/243](http://www.cedadebate.org/cad/index.php/CAD/article/view%20File/271/243))

First, narrow topics are more likely to encourage substantive clash. One of the primary motivations for negative teams running away from engagement with the specifics of the affirmative is fear of “falling behind” in the necessary research effort. On a topic with 200 topical affirmative plan mechanisms, it is extremely unlikely that all but the most precocious of negative teams will be prepared to debate each one, and much more likely that they will turn instead to as generic of an approach as possible. Despite sentiments from some corners that the topic writing process is already too narrow and specialized, I would submit that the debate community has not yet truly experimented with what a radically narrower topic might entail. Even the smallest topics in recent memory have afforded the affirmative an incredible amount of flexibility, usually as a compromise to the “broad topics good” camp. A quick perusal of any of the archived case lists from the past decade reveals that even the narrowest topics the community has debated have entailed dozens (if not hundreds) of discrete affirmatives. Instead, envision as a potentially hyperbolic example, a topic with truly only to prepare a truly in-depth take on each one. Chosen in concert with the right literature base, perhaps the word “stale” could be replaced with “nuanced,” even if debates superficially resemble each other as the year progresses.

#### Limits means your case needs to be predictable

Kupferberg ‘87

Eric Kupferbreg, University of Kentucky 1987 “Limits - The Essence of Topicality”

<http://groups.wfu.edu/debate/MiscSites/DRGArticles/Kupferberg1987LatAmer.htm>

If one considers the purpose of topicality--to initiate a meaningful discussion with sufficient prior notice and adequate ground for both sides--then the questions of delimitation become the focus of topicality standards. Both 'reasonability' and 'best definition' claim to enhance the debate process--the former by providing adequate ground for affirmative case areas and the latter by preventing an unreasonable run-a-way topic.¶ I am not suggesting that limits should be the only test for topicality. If this were sole criteria, teams could argue that inherently limited topics are superior, hence, negatives win because their definition excludes the affirmative (there's always a competitive incentive to limit the affirmative out of the round). Obviously, limits for limits sake is arbitrary as well as abusive. However, debatable limits are clearly desirable. What are these 'debatable limits'? Here are some relevant questions that if answered carefully might help to create criteria for debatable limits:¶ 1) Are there fair number of cases that would be topical? An interpretation that overlimited the resolution would be as inappropriate as one which unlimited the topic. An entire year of debating a single case or 300 cases would be neither educational or enjoyable. An interpretation that allowed somewhere between 20 and 40 cases might be acceptable to most participants in the activity.¶ 2) Is the interpretation open to innovation? Part of the intrigue of debating the same topic year round is the competitive incentive for affirmatives to seek new slants. A debatable interpretation should allow for new cases--although they would be chosen from a predictable range of areas. A debatable limit should not force an overly static topic.¶ 3) Does the interpretation fit within some scope of the field context? While not suggesting that we should rely on field contextual definitions alone, an interpretation of the topic should bear some resemblance to the topic area. It would be almost axiomatic to suggest that a definition of 'agricultural' last year should lend itself to cases that are relevant to real world agricultural issues.¶ 4) Does the interpretation allow for some degree of prior notice? A debatable limit is one where a large number of topical cases are to be anticipated by the general debate community. This is not to imply that surprise 'squirrels' should be prohibited, only that definitions should encompass what a large portion of the debate circuit is running.

#### Limits destroy creative thinking – innovation results from breaking rules and challenging dominate modes of thought.

Clark 07

[(Brian, CEO and founder of Coppyblogger Media) “Do You Recognize These 10 Mental Blocks to Creative Thinking?”, Coppyblogger, 9/18/07]

Whether you’re trying to solve a tough problem, start a business, get attention for that business or write an interesting article, creative thinking is crucial. The process boils down to changing your perspective and seeing things differently than you currently do. People like to call this “thinking outside of the box,” which is the wrong way to look at it. Just like Neo needed to understand that “[there is no spoon](http://www.donnarose.com/Spoon.html)” in the film *The Matrix*, you need to realize “there is no box” to step outside of. You create your own imaginary boxes simply by living life and accepting certain things as “real” when they are just as illusory as the beliefs of a paranoid delusional. The difference is, enough people agree that certain man-made concepts are “real,” so you’re viewed as “normal.” This is good for society overall, but it’s that sort of unquestioning consensus that inhibits your natural creative abilities. So, rather than looking for ways to *inspire* creativity, you should just realize the truth. You’re already capable of creative thinking at all times, but you have to strip away the imaginary mental blocks (or boxes) that you’ve picked up along the way to wherever you are today. I like to keep this list of 10 common ways we suppress our natural creative abilities nearby when I get stuck. It helps me realize that the barriers to a good idea are truly all in my head. 1. Trying to Find the “Right” Answer One of the worst aspects of formal education is the focus on the correct answer to a particular question or problem. While this approach helps us function in society, it hurts creative thinking because real-life issues are ambiguous. There’s often more than one “correct” answer, and the second one you come up with might be better than the first. Many of the following mental blocks can be turned around to reveal ways to find more than one answer to any given problem. Try reframing the issue in several different ways in order to prompt different answers, and embrace answering inherently ambiguous questions in several different ways. 2. Logical Thinking Not only is real life ambiguous, it’s often illogical to the point of madness. While critical thinking skills based on logic are one of our main strengths in evaluating the feasibility of a creative idea, it’s often the enemy of truly innovative thoughts in the first place. One of the best ways to escape the constraints of your own logical mind is to think [metaphorically](http://www.copyblogger.com/become-a-master-of-metaphor-and-multiply-your-blogging-effectiveness/). One of the reasons why metaphors work so well in communications is that we accept them as true without thinking about it. When you realize that “truth” is often symbolic, you’ll often find that you are actually free to come up with alternatives. 3. Following Rules One way to view creative thinking is to look at it as a destructive force. You’re tearing away the often arbitrary rules that others have set for you, and asking either “why” or “why not” whenever confronted with the way “everyone” does things. This is easier said than done, since people will often defend the rules they follow even in the face of evidence that the rule doesn’t work. People love to celebrate rebels like Richard Branson, but few seem brave enough to emulate him. Quit worshipping rule breakers and start breaking some rules. 4. Being Practical Like logic, practicality is hugely important when it comes to execution, but often stifles innovative ideas before they can properly blossom. Don’t allow [the editor](http://www.copyblogger.com/copywriting-curse/) into the same room with your inner artist. Try not to evaluate the actual feasibility of an approach until you’ve allowed it to exist on its own for a bit. Spend time asking “what if” as often as possible, and simply allow your imagination to go where it wants. You might just find yourself discovering a crazy idea that’s so insanely practical that no one’s thought of it before. 5. Play is Not Work Allowing your mind to be at play is perhaps the most effective way to stimulate creative thinking, and yet many people disassociate play from work. These days, the people who can come up with great ideas and solutions are the most economically rewarded, while worker bees are often employed for the benefit of the creative thinkers. You’ve heard the expression “work hard and play hard.” All you have to realize is that they’re the same thing to a creative thinker. 6. That’s Not My Job In an era of hyper-specialization, it’s those who happily explore completely unrelated areas of life and knowledge who best see that everything is related. This goes back to what ad man [Carl Ally](http://www.copyblogger.com/how-to-write-remarkably-creative-content/) said about creative persons—they want to be *know-it-alls*. Sure, you’ve got to know the specialized stuff in your field, but if you view yourself as an explorer rather than a highly-specialized cog in the machine, you’ll run circles around the technical master in the success department. 7. Being a “Serious” Person Most of what keeps us civilized boils down to conformity, consistency, shared values, and yes, thinking about things the same way everyone else does. There’s nothing wrong with that necessarily, but if you can mentally accept that it’s actually nothing more than groupthink that helps a society function, you can then give yourself permission to turn everything that’s accepted upside down and shake out the illusions. Leaders from Egyptian pharaohs to Chinese emperors and European royalty have consulted with *fools*, or court jesters, when faced with tough problems. The persona of the fool allowed the truth to be told, without the usual ramifications that might come with speaking blasphemy or challenging ingrained social conventions. Give yourself permission to be a fool and see things for what they really are. 8. Avoiding Ambiguity We rationally realize that most every situation is ambiguous to some degree. And although dividing complex situations into black and white boxes can lead to disaster, we still do it. It’s an innate characteristic of human psychology to desire certainty, but it’s the creative thinker who rejects the false comfort of clarity when it’s not really appropriate. Ambiguity is your friend if you’re looking to innovate. The fact that most people are uncomfortable exploring uncertainty gives you an advantage, as long as you can embrace ambiguity rather than run from it.