

2017

Cognitive Biases and Reflexive Control

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COGNITIVE BIASES AND REFLEXIVE CONTROL

by
Natalie Minton

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

Oxford
May 2017

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ABSTRACT
NATALIE MINTON: Cognitive Biases and Reflexive Control
(Under the direction of Dr. David W. Bath)

Manipulating an opponent is nothing new to warfare, but what is new is the understanding behind modern tactics, psychology, and the how the two intertwine under real world circumstances. One modern tactic, particularly used by the Russian government, is called reflexive control. This hybrid warfare tactic is used to manipulate an opponent into unknowingly making decisions benefiting the manipulator while harming the opponent. Though executed through many outlets, reflexive control is aimed at flaws within the opponent's decision making process. Many such flaws are categorized as cognitive biases derived from mental shortcuts that can lead the brain to misjudge information.

This paper begins research on the question: do cognitive biases make the United States vulnerable to Russia's use of reflexive control? To answer this question, it must be determined if there is a correlation between cognitive biases and vulnerability to reflexive control. Finding this correlation could possibly provide a greater understanding of modern-day Russian reflexive control, and a narrower understanding of what makes the United States vulnerable to Russian hybrid warfare.

To make this determination, this paper analyzes Cold War and modern literature on reflexive control, analyzes literature on cognitive biases, and studies U.S.-Russian relations and Western-Russian relations from the Cold War to 2017. After examining Western literature and instances of reflexive control, this paper determines that cognitive

biases play a role in Western countries' foreign policy. Though foreign policy decisions rely on policymakers, this paper looks at how analysts, specifically intelligence analysts, can better understand the relationship between cognitive biases and reflexive control in order to better inform policymakers.

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Introduction

Manipulating an opponent is nothing new to warfare, but what is new is the understanding behind modern tactics, psychology, and the how the two intertwine under real world circumstances. One modern tactic, particularly used by the Russian government, is called reflexive control. This hybrid warfare tactic is used to manipulate an opponent into unknowingly making decisions benefiting the manipulator while harming the opponent. Though executed through various outlets, reflexive control is aimed at exploiting flaws within the opponent's decision making process. Many such flaws are categorized as cognitive biases, otherwise known as mental shortcuts that can lead the brain to misjudge information.

This paper begins research on the question: do cognitive biases make the United States vulnerable to Russia's use of reflexive control? Answering this question could possibly provide a greater understanding of modern-day Russian reflexive control, and a narrower understanding of what makes the United States vulnerable to Russian hybrid warfare. Very few pieces of academic literature connect both cognitive biases and reflexive control. This paper's research is relevant because reflexive control targets flaws in the opponent's decision-making process, and cognitive biases are essentially flaws within the decision-making process. Providing an answer to the research question will determine if there is a correlation between cognitive biases and vulnerability to reflexive control.

In order to make this determination, this paper will analyze Cold War era and modern literature on reflexive control, analyze literature on cognitive biases, and study U.S.-Russian relations and Western-Russian relations from the Cold War to 2016. After observing specific historical instances of reflexive control, it will be determined based on the U.S. or West's reactions if cognitive biases seem to have played a role.

Part I begins with a full explanation about reflexive control as a warfare tactic, how Russia has modified it for today's world, and how it targets cognitive flaws. Part II introduces cognitive biases, provides explanations on recognizing biases, and places them into categories dealing with information processing while comparing the human mind to the job of an intelligence analyst. In Part III, instances in U.S.-Russian relations and Western-Russian relations are studied. Specifically observed are Russia's use of reflexive control, U.S.-Western reactions to reflexive control, and the instances' outcomes to determine whether cognitive biases were present in U.S.-Western decision making. Though foreign policy decisions, like those observed in Part III, rely on policymakers, this paper looks at how analysts, specifically intelligence analysts, can better understand the relationship between cognitive biases and reflexive control in order to better inform policymakers.

Part I: Russian Reflexive Control

In the past decade, particularly since the Russian invasion of Ukraine, international interest in Russian hybrid warfare has been on the rise.¹ At first, this new wave of Russian hybrid warfare was treated as something new; but now analysts are beginning to see its resemblance to Soviet disinformation tactics, specifically reflexive control.

Russia has pulled the reflexive control doctrine from the Soviet days and plugged it into their present day operations.² Reflexive control is a technique designed to target errors within the opponent's decision-making process in order to provoke a reaction benefiting Russia at the expense of the opponent. Reflexive control does not seek to destroy the enemy's psyche, but to control it by forming the enemy's perception in line with Soviet interests.³ Though reflexive control does not appear in Soviet literature until the 1970s, the Soviet Union has produced experts in reflexive control theory at least since the 1960s.⁴

¹ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

² Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

³ A.V. Bedritsky, "Realization of the Concepts of Information Warfare by the Military Political Leadership of the USA during the Modern Era," RISI, 2007.

⁴ Timothy L. Thomas, "Russia's Reflexive Control: Theory and the Military," *Journal of Slavic Military Studies* 17 (2004), 237–256, https://www.rit.edu/~w-cmmc/literature/Thomas_2004.pdf.

The Soviet Union used reflexive control on the operational, tactical, and strategic levels regarding internal and external politics.⁵ Russia has changed many aspects of reflexive control to fit today's world, but most of their techniques fundamentally mimic that of the Soviets.⁶ The key element that has remained is Soviet disinformation. Reflexive control is the practice and theory of controlling one's opponent by causing them to act as a "reflex" to disinformation or deception. When using reflexive control, one conveys specially designed information, or disinformation, to provoke a reaction leading the opponent to voluntarily make the predetermined decision the initiator desires.⁷

Disinformation can be divided into two categories: offensive and defensive.⁸ Offensive disinformation seeks to influence decision-makers and public opinion abroad, while defensive disinformation aims to influence Soviet/Russian citizens.⁹ An easier way to frame this is by connecting offensive with external politics, and defensive with internal politics.

⁵ Timothy L. Thomas, "Russia's Reflexive Control: Theory and the Military," *Journal of Slavic Military Studies* 17 (2004), 237–256, https://www.rit.edu/~w-cmmc/literature/Thomas_2004.pdf.

⁶ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

⁷ Timothy L. Thomas, "Russia's Reflexive Control: Theory and the Military," *Journal of Slavic Military Studies* 17 (2004), 237–256, https://www.rit.edu/~w-cmmc/literature/Thomas_2004.pdf.

⁸ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

⁹ *Ibid.*

Some ways in which Russian reflexive control mimics that of the Soviet Union include establishing foreign-language news outlets and Russian-sympathizing think tanks in the West. These are two disinformation tactics that began in the Soviet Era.¹⁰ For example, *Russia Today (RT)* is a multilingual, Russian government-funded news site known for spreading disinformation and propaganda using Russian perspective on global events. Popular Russian blogger, Anton Nosik, refers to *RT* as a “Soviet-style propaganda campaign dating as far back as Joseph Stalin.”¹¹ This is only one example.

Disinformation is used to pressure and disorient the adversary politically, economically, and psychologically by “intensifying diplomatic pressure and propaganda to the world community.”¹² Reflexive control disinformation methods include: supporting the target states’ internal opposition, spreading dissatisfaction among target states’ population, molding domestic and international public opinion, deploying covert operations in the form of cyber attacks, etc.¹³ To understand how Russia uses disinformation, it is important to note the Soviet Union’s disinformation doctrine.

¹⁰ Anton Troianovski, “Russia Ramps Up Information War in Europe,” *Wall Street Journal*, August 21, 2014, www.wsj.com/articles/russia-ramps-up-information-war-in-europe-1408675046.

¹¹ “New Global TV Venture to Promote Russia,” *VOA News*, July 6, 2005, <http://www.voanews.com/a/a-13-2005-07-06-voa33-66930727/377326.html>.

¹² Timothy Thomas, “Think Like A Russian Officer: Basic Factors And Contemporary Thinking On The Nature Of War,” *The Foreign Military Studies Office*, April 2016, [http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20\(final\).pdf](http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20(final).pdf).

¹³ *Ibid.*

Reflexive Control in a New Era

Soviet reflexive control included specific strategies for internal and external politics. Influencing internal politics meant using defensive disinformation, while external politics meant using offensive disinformation. Defensive disinformation includes distorting the truth or creating an entirely new reality in the domestic media.¹⁴ In the Soviet Union, the government propagandized their citizenry through Soviet media and attempted to block all outside voices, like Radio Free Europe/Radio Liberty.¹⁵ Russia uses these same techniques today, but with 21st century alterations.

Because the world's primary information source has moved from radio to the Internet, Russia blocks internet protocol addresses instead of foreign radio broadcasts.¹⁶ Aside from the Internet, Russian citizens get their daily news from television.¹⁷ As a way to ensure defensive disinformation, the Russian government has banned all foreign ownership of media outlets in Russia.¹⁸ As a result, the Russian government owns most

¹⁴ Peter Pomerantsev, "Russia and the Menace of Unreality," *The Atlantic*, September 9, 2014, <http://www.theatlantic.com/international/archive/2014/09/russia-putin-revolutionizing-information-warfare/379880/>; Paul Goble, "Soviets Only Censored Reality; Putin Creates an Alternative One, Ikhlov Says," *Window on Eurasia*, 15 August 2015, <http://win-dowoneurasia2.blogspot.com/2015/08/soviets-only-censored-reality-putin.html>.

¹⁵ Philip Shenon, "Years of Jamming Voice of America Halted by Soviet," *New York Times*, May 26, 1987; Serge Schmemmann, "Soviet Union Ends Years of Jamming of Radio Liberty," *New York Times*, December 1, 1988.

¹⁶ Paul Goble, "Moscow Now Seeking to Ban Means Russians Use to Get Around Its Blocking of Web Sites," *Window on Eurasia*, August 1, 2015, <http://windowoneurasia2.blogspot.com/2015/08/moscow-now-seeking-to-ban-means.html>.

¹⁷ Paul Goble, "Despite Internet, Moscow TV Sets Agenda for Russians, Levada Center Says," *The Interpreter*, June 23, 2014.

¹⁸ Paul Goble, "Russia May Soon Have 'More Blocked Websites than Working Ones,' Legal Expert Says," *The Interpreter*, April 11, 2015, <http://www.interpretermag.com/russia-may-soon-have-more-blocked-websites-than-working-ones-legal-expert-says/>.

Russian media, and has a majority percent interest in outlets it does not own.¹⁹ Though this disinformation is focused internally, it has external effects that play into offensive disinformation.

Russian heritage citizens living in former Soviet Union states, apart from Russia, get their news from Russian-language news outlets.²⁰ This means that Russian defensive disinformation has a larger audience outside their domestic population. Because the Russian narrative is circulated into former Soviet states that are now young democracies, Russian defensive disinformation attracts Western attention.²¹ However, unlike the Soviet Union, Russia does not seek to convince the West of their narratives. Instead, Russia seeks to pollute the news cycle, particularly the Internet, with disinformation.²² Russia's goals are convincing the public that the Internet is an unreliable news source and discrediting the media in Western eyes.²³ Here, defensive disinformation turns offensive.

¹⁹ "Russia Profile – Media," *BBC*, February 25, 2015, <http://www.bbc.com/news/world-europe-17840134>; Roxburgh, Angus, *The Strongman: Vladimir Putin and the Struggle for Russia*, I. B. Tauris, New York: 2012, Print, Pg. 56-63, 292.

²⁰ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

²¹ "State-Run News Station Accused of Making Up Child Crucifixion," *Moscow Times*, July 14, 2014, <http://www.themoscowtimes.com/news/article/state-run-news-station-accused-of-making-up-child-crucifixion/503397.html>; Pomerantsev, Peter. "Russia and the Menace of Unreality How Vladimir Putin is Revolutionizing Information Warfare," *The Atlantic*, September 9, 2014.

²² Daisy Sindelar, "The Kremlin's Troll Army: Moscow Is Financing Legions of Pro-Russia Internet Commenters. But How Much Do They Matter?" *The Atlantic*, August 12, 2014 <http://www.theatlantic.com/international/archive/2014/08/the-kremlins-troll-army/375932/>.

²³ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

Offensive disinformation is the main concern for the international community. To carry out offensive disinformation for reflexive control, Russia uses what contemporary analysts call “the 4D Approach” – *dismiss*, *distort*, *distract*, and *dismay*.²⁴ When information arises revealing Russian interests, Russian leaders publicly *dismiss* it.²⁵ For instance, Putin dismissed international accusations that Russian military forces were occupying Crimea.²⁶ Russian spokesmen *distort* the contrary information that persists after dismissal.²⁷ Pro-Kremlin journalists distorted facts about Ukrainians.²⁸ If the same contrary information persists even after distortion, Russia will *distract* international attention away from Russian interests.²⁹ Russian media distracted the international community, for example, with outrageous theories about Malaysian Airlines Flight 17.³⁰ At the last resort, Russian officials will *dismay* the international audience with a public

²⁴ John B. Emerson, “Exposing Russian Disinformation,” June 29, 2015, <http://www.atlanticcouncil.org/blogs/new-atlanticist/exposing-russian-disinformation>.

²⁵ Jon White, “Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation,” (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

²⁶ John B. Emerson, “Exposing Russian Disinformation,” June 29, 2015, <http://www.atlanticcouncil.org/blogs/new-atlanticist/exposing-russian-disinformation>.

²⁷ Jon White, “Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation,” (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

²⁸ Maria Snegovaya, “Putin’s Information Warfare in Ukraine: Soviet Origins of Russia’s Hybrid Warfare,” (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

²⁹ Jon White, “Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation,” (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

³⁰ John B. Emerson, “Exposing Russian Disinformation,” June 29, 2015, <http://www.atlanticcouncil.org/blogs/new-atlanticist/exposing-russian-disinformation>.

statement or action drastically contrasting the common idea about Russian interests.³¹

The Russian officials “dismayed” the international community by increasing nuclear rhetoric and threats against NATO, one case in particular involving Russian ambassador to Denmark threatening to aim nuclear missiles at Danish warships in response to Denmark joining NATO’s missile defense system.³²

Russia uses the Soviet-designed 4D Approach, but seems to have added two more Ds to the process. These additions are *destroy* and *destabilize*. Russia’s disinformation campaign seeks to *destroy* pieces of their enemy’s infrastructure.³³ For instance, Russia uses cyber-attacks to cause power-supply facility failure, transportation paralysis, etc.³⁴ These attacks are later used for the greater purpose of destabilization. In February 2007, Russian President Vladimir Putin asserted in his Munich Speech that the U.S.-led unipolar international system is “unacceptable”, and Russia would pursue its own geopolitical interests despite the hegemonic power balance.³⁵ These geopolitical interests include expanding its territory to consolidate post-Soviet states.³⁶ To achieve this

³¹ Jon White, “Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation,” (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

³² John B. Emerson, “Exposing Russian Disinformation,” June 29, 2015, <http://www.atlanticcouncil.org/blogs/new-atlanticist/exposing-russian-disinformation>.

³³ A.V. Bedritsky, “Realization of the Concepts of Information Warfare by the Military Political Leadership of the USA during the Modern Era,” RISI, 2007.

³⁴ Maria Snegovaya, “Putin’s Information Warfare in Ukraine: Soviet Origins of Russia’s Hybrid Warfare,” (Russia Report 1, Institute for the Study of War, 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

³⁵ “Putin’s Prepared Remarks at 43rd Munich Conference on Security Policy,” *The Washington Post*, February 12, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/02/12/AR2007021200555.html>.

³⁶ Alexandra Wiktorek Sarlo, “Russian Foreign Policy in the Putin Era: A Conference Report,” Foreign Policy Research Institute, May 18, 2016, <http://www.fpri.org/article/2016/05/russian-foreign-policy-putin-era/>.

objective, Russia uses disinformation to *destabilize* regions, as it has attempted in Ukraine and Estonia.³⁷ Major General N. I. Turko, Russian Federation General Staff Academy instructor, proposed in 1996 that using reflexive control by attacking a state's information resources could inflict destabilizing damage to the geopolitical power balance.³⁸ Currently, Russia seems to combine destruction and destabilization disinformation techniques to gradually change the international system's geopolitical power balance.

Reflexive Control and Cognitive Error

Because reflexive control can impact a state from its military and government systems down to its population's opinions, lacking properly reinforced information security can lead a state to losing its sovereignty, economic, and global power status.³⁹ Within information security are information resources. Timothy Thomas defines information resources as a group of four characteristics: "...

³⁷ Alexandra Wiktorek Sarlo, "Russian Foreign Policy in the Putin Era: A Conference Report," Foreign Policy Research Institute, May 18, 2016, <http://www.fpri.org/article/2016/05/russian-foreign-policy-putin-era/>.

³⁸ N. I. Turko and S. A. Modestov, "*Refleksivnoe upravlenie razvitiem strate- gicheskikh sil gosudarstva kak mekhanizm sovremennoi geopolitiki* (Reflexive Control in the Development of Strategic Forces of States as a Mechanism of Geopolitics)," report at the conference on "Systems Analysis on the Threshold of the 21st Century: Theory and Practice," Moscow, February 1996, p. 366.

³⁹ S. G. Chekinov and S. A. Bogdanov, "The Strategy of the Indirect Approach: Its Impact on Modern Warfare," *Voennaya Mysl' (Military Thought)*, No. 6, 2011, Pg. 6-9.

1. information and transmitters of information, to include the method or technology of obtaining, conveying, gathering, accumulating, processing, storing, and exploiting information;
2. infrastructure, including information centers means for automating information processes, switchboard communications, and data transfer networks;
3. programming and mathematical means for managing information;
4. and administrative and organizational bodies that manage information processes, scientific personnel, creators of data bases and knowledge, as well as personnel who service the means of informatizatsiya [informatization].”⁴⁰

By targeting these characteristics, Russia is able to influence their target to form a decision based on disinformation. Disinformation is fabricated according to Russia’s understanding of the enemy’s intelligence, concepts, knowledge, ideas, and experience.⁴¹ This combination of qualities is considered the foundation of the decision-maker’s information filter.⁴² The information filter is the cognitive tool the brain uses to decide what information is useful and what is not.⁴³ Reflexive control’s primary use is to find and exploit the information filter’s weakest link – cognitive error.⁴⁴

⁴⁰ Timothy L. Thomas, “Russia’s Reflexive Control: Theory and the Military,” *Journal of Slavic Military Studies* 17 (2004), 237–256, https://www.rit.edu/~w-cmmc/literature/Thomas_2004.pdf.

⁴¹ S. Leonenko, ‘Refleksivnoe upravlenie protivnikom [Reflexive control of the enemy],’ *Armeiskii sbornik* (Army Collection), No. 8, 1995, p. 28-30.

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ Timothy L. Thomas, “Russia’s Reflexive Control: Theory and the Military,” *Journal of Slavic Military Studies* 17 (2004), 237–256, https://www.rit.edu/~w-cmmc/literature/Thomas_2004.pdf.

According to Daniel Kahneman, the brain's information processing is separated into two parts: System 1 and System 2. System 1 operates involuntarily leaving thought to intuition and automatic, effortless decision making. System 1 reacts to new information that can be easily assessed via *heuristics* and *cognitive bias*⁴⁵ making these judgments more prone to error. System 2 responds to information that requires the brain to concentrate and use more effortful thinking to make decisions.⁴⁶ Reflexive control can exploit this system difference by making the desired behavior effortless, therefore easier to process and more prone to cognitive error.

⁴⁵ See Part II for information on heuristics and cognitive bias.

⁴⁶ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 20-21.

Part II: Cognitive Biases and Intelligence Analysts

The word “bias” is used with negative connotation, commonly associated with being stubborn or being wrong. Even Merriam-Webster holds this impression defining a “bias” as “a tendency to believe that some people, ideas, etc., are better than others that usually results in treating some people unfairly.”⁴⁷ Though this is a correct definition for a social bias, a cognitive bias is somewhat different.

The human mind has fundamental limitations, which include cognitive limitations that effect decision-making.⁴⁸ Cognitive biases stem from heuristics which are essentially mental shortcuts the brain uses to make quick judgments about new information without using conscious mental activity.⁴⁹ A cognitive bias is established within the subconscious to get around these limitations and create simplifying strategies to make information processing easier.⁵⁰ Simply put, cognitive biases are basic rules of thumb the brain uses to make sense of a complex situation under a short time constraint.⁵¹

⁴⁷ Merriam-Webster, October 14, 2016, <http://www.merriam-webster.com/dictionary/bias>.

⁴⁸ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 111, www.odci.gov/csi.

⁴⁹ Amos Tversky and Daniel Kahneman, “Judgment Under Uncertainty: Heuristics and Biases,” *Science*, vol. 185, 1974.

⁵⁰ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 111, www.odci.gov/csi.

⁵¹ *Ibid.*

Most of the time, people believe they know what is going on in their minds – a conscious sequence of thoughts.⁵² But that is not exactly how the mind works. If a person is asked what they are thinking, the person can produce an answer; but most of what comes to the conscious mind arises from the subconscious (meaning they are unaware of their original thought’s origin).⁵³ For example, one can believe in an instant that someone is irritated by the expression on their face and the tone of their voice, but one is unaware of how they came to know at that instant that this expression and tone means irritation.

Unlike Merriam-Webster’s definition, it is important to note that cognitive biases are not rooted in emotional or intellectual judgments.⁵⁴ Instead, they are subconscious shortcuts that are consistent, predictable, but most importantly – a systematic error.⁵⁵ The term “error” does not mean that these biases are always wrong. The human mind bases most of its decisions off of these kinds of judgments, and most of the time these judgments are appropriate and justified.⁵⁶ However, because these judgments guide people through life, people often fail to see the times when their judgments have misguided them.⁵⁷ Biases are deemed “errors” in decision-making because they are essentially mental shortcuts that are not fault-proof. When the subconscious mind uses

⁵² Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 4.

⁵³ *Ibid.*

⁵⁴ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 111, www.odci.gov/csi.

⁵⁵ *Ibid.*

⁵⁶ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 4.

⁵⁷ *Ibid.*

cognitive biases, the outcome of them leading the conscious mind right or wrong relies on chance.⁵⁸

Though cognitive biases are consistent and predictable, they are invariably difficult to spot. As former CIA officer, Richards J. Heuer, Jr. states, “Cognitive biases are similar to optical illusions in that the error remains compelling even when one is fully aware of its nature.”⁵⁹ Just as the eyes must be forced to see an optical illusion for what it is – an illusion, the mind (even a mind with knowledge of cognitive biases) has to be forced to see the biases it uses from decision to decision.

Recognizing Biases

As mentioned before, cognitive biases effects on a decision’s outcome is unknown. This stems from the outcome’s inherent uncertainty until the outcome has happened.⁶⁰ In the Intelligence Community, the intelligence analyst is the person who most deals with the uncertainty of the world. Intelligence’s primary purpose in the decision-making process is to reduce uncertainty, identify risks and opportunities, and deepen understanding for the decision-maker.⁶¹ Though being better informed does not guarantee that a better decision will be made, being misinformed or uninformed reduces

⁵⁸ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 9-11.

⁵⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 112, www.odci.gov/csi.

⁶⁰ Amos Tversky and Daniel Kahneman, “Judgment Under Uncertainty: Heuristics and Biases,” *Science*, vol. 185, 1974.

⁶¹ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 25.

chances for successful decision-making.⁶² This rule applies to everyday individuals, but more importantly IC analysts. The analyst must provide adequate warning, assess all key developments, interpret available data, and use solid assumptions to fill information gaps to provide decision-makers (aka, policy makers) with quality support.⁶³ If an analyst fails to do so, time, effort, and a great deal of taxpayer money is wasted on a national security shortcoming, and the nation's security is at risk.

Because the brain uses System 1 and System 2 thinking, intelligence analysts must be aware of their own brain's information processing as they too work to process information. Just like biases arise in the mind's information processing, they also arise in the IC's information processing.⁶⁴ However, as previously mentioned, it is difficult to recognize these biases when they surface.

Much of what this recognition difficulty derives from is called *bias blind spot*. Bias blind spot is something that all humans suffer from.⁶⁵ Just as with most problems, people are more apt to see biases in other peoples' judgments than their own; therefore, making it harder to accept their own information processing flaws.⁶⁶ Though everyone has a bias blind spot, those with high levels of bias blind spot are least likely to recognize

⁶² Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 25.

⁶³ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 24.

⁶⁴ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 112, www.odci.gov/csi.

⁶⁵ Shilo Rea, "Believing You're Less Biased Than Your Peers Has Detrimental Consequences," Carnegie Mellon University, June 8, 2015, <http://www.cmu.edu/news/stories/archives/2015/june/bias-blind-spot.html>.

⁶⁶ *Ibid.*

their own biases and least likely to improve their decisions' quality.⁶⁷ This is relevant to individuals' understanding of their own decision making and intelligence analysts looking to produce better-informed and more objective intelligence.

There are four parallels between the brain⁶⁸ and today's intelligence analysts⁶⁹ that will help outline exactly how biases can effect the analyst.

1. Both are exposed to information overload that each has to meticulously filter only keeping what is important.
2. Both have to form assumptions filling in information gaps to make sense of the evidence.
3. Both are required to act under a time constraint.
4. It is crucial that both remember the important information for future reference.

Intelligence analysis is fundamentally a mental process. Information is just data until it is processed in the brain of an analyst; therefore, understanding how this process can be flawed by heuristics and biases is important to the analyst's job.⁷⁰ Each of these parallels between the brain and analyst are subject to their own cognitive biases. In order

⁶⁷ Shilo Rea, "Believing You're Less Biased Than Your Peers Has Detrimental Consequences," Carnegie Mellon University, June 8, 2015, <http://www.cmu.edu/news/stories/archives/2015/june/bias-blind-spot.html>.

⁶⁸ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

⁶⁹ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 10 and 36.

⁷⁰ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 22.

to understand how cognitive biases affect the analyst's information processing, one must understand how cognitive biases affect the decision making.

Information Overload

Essentially what is depicted as *information overload* is an amount of information (relevant, irrelevant, factual, opinionated, propaganda, evidence, etc.) that is so vast that it is impossible to sort through entirely to find the most important information and form a complete analysis under a certain time constraint. As the mind performs daily tasks under this condition, so do intelligence analysts. There are close similarities between the two operations and their environments; but as analysts work to process and analyze information, they, too, have their own subconscious processing and analyzing the information they receive.

Now that the world is instantaneously connected through information via Internet, the effects of information overload have changed the way the mind processes the world.⁷¹ As mentioned earlier, the human mind has limitations. In the case of information storage, that limit is three terabytes⁷² worth of information.⁷³ However, the brain's storage ability only amounts to one-millionth of the daily information output meaning that the worldwide information quantity is increasing by 2.5 quintillion bytes per day.⁷⁴ Out of this, the amount of useful information is slight. As Nate Silver contends, "Most of it is

⁷¹ Nate Silver, *The Signal and the Noise*, Penguin Group, New York: 2012, Print, Pg. 13.

⁷² A terabyte is a unit of information equal to one million million (10^{12}) or strictly, 2^{40} bytes.

⁷³ Robert Birge, Syracuse University, 1996, <http://www.sizes.com/people/brain.htm>.

⁷⁴ Nate Silver, *The Signal and the Noise*, Penguin Group, New York: 2012, Print, Pg. 12 – 13.

just noise, and the noise is increasing faster than the signal.”⁷⁵ Because of the vast quantity and uncertain quality of the information that is spread daily, the brain has to use its space for information it deems important.

Since the end of the Cold War, the quality and quantity of information available to the public and the IC has evolved.⁷⁶ For the IC, the scope of information broadened two ways.⁷⁷ One was the growing diversity of national threats.⁷⁸ These threats range from climate change and disease to cybersecurity and terrorism.⁷⁹ Not only did types of threats change, but the sources of threats changed from a few powerful states to billions of individuals residing in hundreds of nation-states.⁸⁰ As Thomas Fingar explains, “the transition from a few countries to billions of individuals made the challenge [analysis] roughly a billion times more difficult.”⁸¹ The second was the overwhelming amount of easily accessible information that came along with technological advances.⁸² Since there are nearly billions of times more pieces of information for analysts to filter and analyze, analysts are experiencing information overload.⁸³

⁷⁵ Nate Silver, *The Signal and the Noise*, Penguin Group, New York: 2012, Print, Pg. 12 – 13.

⁷⁶ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 9.

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

⁸¹ *Ibid.*

⁸² Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 10.

⁸³ *Ibid.*

To avoid information overload, intelligence analysts have to quickly filter through this overwhelming quantity and select the important information.⁸⁴ Because the mind is programmed to find and respond to patterns without much hesitation, cognitive biases are inherent to mental processes.⁸⁵ Information overload poses multiple situations in which biases are more likely to develop.

In viewing a large quantity of information, the brain is likely to make subconscious shortcuts to narrow the scope. In one way, the brain tends to notice correlations between present information and information that has been recorded recently in memory.⁸⁶ One bias responsible for this is the *availability heuristic*, which is the way the subconscious mind attaches importance to information based on how easily similar information is recalled.⁸⁷ Another bias responsible is called *base rate neglect*. In this, new details within information become more important than the general information (even if the general information is more relevant).⁸⁸ An additional bias involved is called *the vividness criterion* in which directly perceived information is given a greater value over secondhand or statistical information.⁸⁹ An example encompassing these biases would be cancelling a flight after hearing news about two recent airplane crashes though the probability of a plane crash has not changed. Out of the large quantity of information

⁸⁴ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

⁸⁵ Nate Silver, *The Signal and the Noise*, Penguin Group, New York: 2012, Print, Pg. 12.

⁸⁶ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

⁸⁷ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 130.

⁸⁸ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 88.

⁸⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 116, www.odci.gov/csi.

about airplanes and probability, the newest and most relatable information (the recent plane crashes) are chosen as the most important (though they are likely to be random and coincidental) over airplane crash statistics (the most relevant data).

To shorten the information list, the mind often looks for changes in information. But once the brain finds these changes, it attaches meaning to the information based on the direction of the change instead of weighing the information's new value.⁹⁰ Two of these biases are the *anchoring effect* and the *framing effect*. The anchoring effect refers to the tendency to rely too heavily on the first piece of information provided and adjust insufficiently when provided additional information.⁹¹ This also explains the persistence of false impressions. Even after the first impression of information has been disproven, it still effects later judgments.⁹² The framing effect acts similarly in that the way information is provided often effects how it is perceived.⁹³ For instance, saying something is 90% fat-free has a different effect than saying it has 10% fat. Both are equivalent, but the perceptions of both are disparate.

Also, the brain tends to ignore information contrary to the expected pattern and only focus on what supports preconceived beliefs.⁹⁴ This is best represented by the *confirmation bias* which is the tendency to perceive what is expected to be perceived in a

⁹⁰ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

⁹¹ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 119 – 122.

⁹² Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 124, www.odci.gov/csi.

⁹³ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 88.

⁹⁴ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

way that supports a predetermined conclusion.⁹⁵ Take an analyst for example. Because analysts have to make assumptions and maintain expectations about people and foreign countries, the way they perceive information within the mounds of data depends in part on the analyst's expectation patterns.⁹⁶ This leads to what Richards J. Heuer, Jr. defines as confirmation bias, "new information [that] is typically assimilated to existing beliefs."⁹⁷ Simply stated, expectations influence information perception.

Filling in the Gaps

Once all the information has been reduced, the subconscious mind and analysts both must "connect the dots" and fill in the space between information with assumptions. Though there is an information abundance, to say the least, very little of that information is useful. This means that there lie gaps between pieces of useful information leaving space for analysts to fill. These information gaps are filled with assumptions linking information together to create a plausible narrative.⁹⁸ Biases are often employed to make sense of information with little meaning and create an understandable sequence.

Even in small amounts of data, patterns can be found – even patterns that are not really there. As a way of imposing order on a chaotic environment, the human mind searches for certain events' causes even if the phenomena are accidental, coincidental, or

⁹⁵ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 8, www.odci.gov/csi.

⁹⁶ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 9, www.odci.gov/csi.

⁹⁷ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 153, www.odci.gov/csi.

⁹⁸ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 128-129, www.odci.gov/csi.

random.⁹⁹ Within this are several biases relative to probability and chance. First, the insensitivity to sample size, or the *law of small numbers*, refers to the brain's inability to comprehend that statistical facts do not cause an event's occurrence, but rather change the outcome's probability.¹⁰⁰ The bottom line is large samples are more precise than small samples because small samples produce extreme results more often than large samples.¹⁰¹ When looking at a few small pieces of data, correlations are spotted more easily than when the entire data set is taken into account. As a result, an analyst is more likely to say that data A caused data B even though their correlation is an illusion with no real connection. This is similar to another bias, the *illusion of validity*, in which the analyst is fully aware of their predictability limitations, but continues to hold strong confidence in a prediction based on a previously found pattern.¹⁰² No matter the consistency of information, small data amounts that cannot specifically produce a judgment must be held at a low confidence level.¹⁰³ For example, an analyst may draw far-reaching inferences about a foreign government's plans based on isolated incidents involving government officials who may have been acting on their own. Though it can be difficult to determine whether incidents are isolated or part of a broader plan, the probability of

⁹⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 127, www.odci.gov/csi.

¹⁰⁰ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 110.

¹⁰¹ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 111.

¹⁰² Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 209.

¹⁰³ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 122, www.odci.gov/csi.

isolation outweighs the assumption of a broader picture when dealing with small numbers.

Gaps in information often lead the brain to associate new partial information with similar, previously understood information to create a coherent picture; but, once that information is combined, the difference between new “real” information and the “filled in” information is forgotten and the entire picture becomes the brain’s truth.¹⁰⁴

Stereotyping is the most common bias the brain uses for these situations. The subconscious mind uses stereotypes to categorize information.¹⁰⁵ To do this, it holds a representational image of specific pieces of information and applies this image to all new similar information.¹⁰⁶ Analysts may stereotype by assuming that one actor will respond a certain way because of their government’s regime type, or assume that an economic cause will have an economic effect¹⁰⁷; both discounting other possibilities.

Humans are biologically predisposed to assume that more favorable information is more valuable than unfavorable information.¹⁰⁸ If a presented information piece’s quality is uncertain, the brain then creates certainty based on how favorable the information is to the narrative the brain is trying to create.¹⁰⁹ In this case, the information

¹⁰⁴ Buster Benson, “Cognitive bias cheat sheet,” *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹⁰⁵ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 168-169.

¹⁰⁶ *Ibid.*

¹⁰⁷ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 133, www.odci.gov/csi.

¹⁰⁸ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 91.

¹⁰⁹ *Ibid.*

gap is filled-in with an assumption about the information's quality.¹¹⁰ The *halo effect* is one bias that explains this phenomenon. Similar to the anchoring effect, the halo effect increases the weight of first impressions, and applies this impression to everything associated with the perceived information.¹¹¹ From here, the opinion held about the information then effects how valuable the information is to the current situation and other instances, even if the information has nothing to do with other instances.¹¹² An analyst might receive information that plays well into their intended narrative, when in actuality does not relate to the evidence; or, an analyst could disfavor accurate information, but disregard it and everything associated with it because it makes less sense of their narrative.

Because the brain cannot directly communicate with another, the subconscious mind often assumes that the other brain (or collection of brains) is doing exactly what it is doing. In this case, people model others after themselves. But because people are not aware of everything that is happening in their own minds, a much more simplified version of themselves is projected onto those they are trying to understand.¹¹³ *Mirror-imaging*, also known as “everybody-thinks-like-us mindset”¹¹⁴, is an assumption used to fill in gaps about another actor's intentions, motives, or future actions.¹¹⁵ This means the

¹¹⁰ Buster Benson, “Cognitive bias cheat sheet,” *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹¹¹ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 82.

¹¹² *Ibid.*

¹¹³ Buster Benson, “Cognitive bias cheat sheet,” *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹¹⁴ Jim Wolf, “CIA Inquest Finds US Missed Indian ‘Mindset’,” UPI wire service, June 3, 1998.

¹¹⁵ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 70, www.odci.gov/csi.

analyst might assume the other side will likely act in a way that their country would act under similar circumstances. This can be a dangerous assumption for analysts to make because different cultures have different ways and methods of thinking.¹¹⁶

Another way people project is by projecting assumptions onto the past, present, or future. Because prediction of how fast or slow something will occur is practically impossible, the brain uses several biases to fill in these gaps.¹¹⁷ *Hindsight bias* is the number one bias when it comes to using the past and present to explain one another. In using this bias, people may replace their past beliefs with refurbished ones based on current knowledge.¹¹⁸ This creates a “knew-it-all-along” effect which provides ground to make assessments about past events based on their present outcomes.¹¹⁹ Like the hindsight bias, the *narrative fallacy* involves an inadequate memory of the past that shapes present views and expectations for the future.¹²⁰ In the *gambler’s fallacy*, the mind overestimates the influence of past events on future outcomes. This means that lessons learned from the past are “overlearned” causing an extreme reaction in similar future situations.¹²¹ Using these biases, analysts may over or underestimate the quality of their past judgments, let these weighted judgments influence current judgments, and assume

¹¹⁶ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 70, www.odci.gov/csi.

¹¹⁷ Buster Benson, “Cognitive bias cheat sheet,” *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹¹⁸ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 202-204.

¹¹⁹ *Ibid.*

¹²⁰ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 199.

¹²¹ Robert Jervis, *Why Intelligence Fails: lessons from the Iranian Revolution and the Iraq War*, Cornell University Press, Ithaca: 2010, Print, Pg. 138-139.

that these same events will have direct effects on the future.¹²² Though assumptions are necessary to fill information gaps, these assumptions must be heavily scrutinized before they are allowed to stand on their own.

Time Constraint

For analysts and the subconscious mind to produce an analysis as closely representing reality as possible, the information scope must be narrowed and information gaps must be filled with solid assumptions. However, these tasks take place under a time constraint. In the IC, intelligence is a product analysts tailor to meet the needs and timelines of the decision-maker.¹²³ Decision-makers expect analysts to alert them of changes and developments, and always want to know more about what to expect moving forward.¹²⁴ As new developments and changes emerge, analysts attempt to examine available relevant factors and interpret the information's meaning within the real-world decision timelines of U.S. policymakers; but producing a perfect analysis is not as important as providing helpful insights in a timely manner.¹²⁵ Even if providing a perfect analysis was possible, the final product would not contribute to national security because, by the time it would be produced, its utility timeline would have expired.¹²⁶ Because

¹²² Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 161-163, www.odci.gov/csi.

¹²³ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 37-39.

¹²⁴ *Ibid.*

¹²⁵ *Ibid.*

¹²⁶ *Ibid.*

there is little time to waste, analyses involve drawing conclusions.¹²⁷ These conclusions are based on limited evidence which is the best the human mind can do for a time-limited decision-making process.¹²⁸ Along with these conclusions come inherent biases.

In order to act under time pressure, most people want to feel confident in their ability to impact the situation at hand.¹²⁹ However, several biases grow from this confidence. *Overconfidence* is the primary bias that can result from a simple desire for importance. Most of the confidence people hold in their beliefs depend on their narrative's coherence created out of limited evidence. With overconfidence, coherence develops out of a perceived pattern in the evidence and rejects the possibility of missing evidence critical to developing the "true" representation of reality.¹³⁰ To make information processing quicker, analysts either reject or accept present evidence. If rejected, the evidence is rejected completely and is no longer used. If accepted, the evidence is accepted completely and any probability of its inaccuracy is ignored.¹³¹ Overconfidence simplifies probability and ignores uncertainty.¹³² For instance, analysts' judgments based on evidence treated as 100 percent certain, when in reality the analyst is only 80 percent certain, are overconfident.

¹²⁷ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 79.

¹²⁸ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 86.

¹²⁹ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹³⁰ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 87.

¹³¹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 122, www.odci.gov/csi.

¹³² *Ibid.*

Aside from being personally important, people also want their work to be important. Because people do not want to admit they have wasted their constrained time, they are usually motivated to complete only the tasks they have invested the most time to.¹³³ Out of this arises several biases. One bias is *loss aversion*, which is the tendency for people to prefer the absence of gains to losses. This bias indicates that people suffer more when they lose than when they fail to gain.¹³⁴ Applied to analysis, an analyst likely would rather fail to gain time for relevant work than lose time because of wasted work. Another bias is the *endowment effect*, which is the tendency for people to hold more value to a possession simply because they own it.¹³⁵ As analysts are critical for providing intelligence to decision-makers, they have to relinquish the ownership of their intelligence products to the policymaker to implement the new idea. This would not be a problem for most people except that policymakers rarely share credit for the intelligence with the analyst responsible.¹³⁶ This means the analyst's only incentive for giving up their product is the possible successful outcome of a policymaker's decision.

When people are to choose between options, they normally choose the option with the least amount of risk involved as to conserve time by avoiding irreversible decisions. This plays into the understanding that people will work harder to avoid losses

¹³³ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹³⁴ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 305-309.

¹³⁵ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 289-299.

¹³⁶ Thomas Fingar, *Reducing Uncertainty: Intelligence Analysis and National Security*, Stanford University Press, Stanford: 2011, Print, Pg. 5.

then to achieve gains.¹³⁷ The bias best representing this is the *status quo bias*. This is the idea that the current state is better than an uncertain alternative state. The status quo bias influences people to conserve the status quo and avoid changes as much as possible.¹³⁸ When conservation becomes one's mindset, they become resistant to change.¹³⁹ For an analyst, this bias becomes a problem when they disregard changes or abnormal information simply because changing the status quo is too time consuming or would cause them to reconsider a long-time, developing analysis. This can also be problematic when the analyst views a foreign country through a status quo lens and does not account for abnormal changes within the foreign government's or society's behavior.

What to Remember

After analysis is concluded and intelligence is produced to the decision-maker (whether that be policymakers or the conscious mind), the analyst and subconscious mind have to decide what information to store for future reference. In the human brain, a few key items are chosen to save and all the other intricate details are discarded.¹⁴⁰ The information that is saved comes back to later play a part in filtering the information overload and filling in information gaps.¹⁴¹ But because the brain has limited space, it can only take in limited information.

¹³⁷ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 305.

¹³⁸ *Ibid.*

¹³⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 10, www.odci.gov/csi.

¹⁴⁰ Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹⁴¹ *Ibid.*

When intricate details are discarded, a few things happen to the saved information. First, some information gets edited or reinforced.¹⁴² Some memories can become stronger, later over-powering other new but important information. Some details within the information can get disfigured and replaced with other already stored details. Second, information specifics may turn into generalities.¹⁴³ Third, information about entire events or lists are reduced to a few points representing the whole.¹⁴⁴ Finally, information can be stored based on the circumstances in which the information was received, even if it had little or nothing to do with the information.¹⁴⁵ Each of these storing methods serves as grounds for later bias.

Understanding how the brain stores information and the biases that are at risk can later help recognize when biases are at play and guard against them when noticed. However, it is too easy to say that if analysts would just recognize biases, then they would not be biased. Analysis is ultimately a mental process. Because biases are at the root of the mental process, biases are highly resistant to efforts to guard against them.¹⁴⁶ There are ways analysts can improve their analysis by changing the way they think about defining the problem, forming and evaluating hypotheses, and monitoring new information.¹⁴⁷

¹⁴² Buster Benson, "Cognitive bias cheat sheet," *Better Humans*, September 1, 2016, <https://betterhumans.coach.me/cognitive-bias-cheat-sheet-55a472476b18#.mq1uu92qp>.

¹⁴³ *Ibid.*

¹⁴⁴ *Ibid.*

¹⁴⁵ *Ibid.*

¹⁴⁶ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 170-171, www.odci.gov/csi.

¹⁴⁷ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 173, www.odci.gov/csi.

When defining the problem in need of analysis, the analyst must ask the right questions.¹⁴⁸ There is a large difference in questions types – there are the right questions and the easier questions to answer.¹⁴⁹ One of the subconscious mind’s tendencies is to substitute the right question with an easier question to answer if the answer to the right question is not found quickly.¹⁵⁰ For instance, an analyst might need to answer “What will the relationship between State A and State B be like six months from now?” The easier counterpart to this would be “What is the relationship between State A and State B like right now?” Though the easier question’s answer may be part of answering the right question, it is not the answer to both. Easier questions open the analyst up to a greater chance of succumbing to biases. The analyst may not realize they are answering the right question with an easier question’s answer. A sign that the right question has been replaced by an easier one includes coming to a conclusion almost at an instant without much conscious thought, if any.¹⁵¹

Forming and evaluating hypotheses is subject to its own bias possibilities, but also has its own defense techniques. To generate hypotheses, the analyst considers and lists all likely outcomes.¹⁵² At this point, the mind generally wants to consider only those that it conceives as most probable, but not all those that are likely possible. This can be solved in part by using a brainstorming method and consulting other experts, while withholding

¹⁴⁸ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 174, www.odci.gov/csi.

¹⁴⁹ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 97-104.

¹⁵⁰ *Ibid.*

¹⁵¹ *Ibid.*

¹⁵² Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 174-177, www.odci.gov/csi.

all judgment until every hypothesis is listed. To evaluate hypotheses, the analyst can scrutinize each hypothesis attempting to prove each one wrong with the available evidence. Evidence is used to argue against each hypothesis rather than used to confirm one. Finally, the most likely hypothesis is the one left with the least amount of evidence against it.¹⁵³ It is important to note that one hypothesis should be kept pointing out the possibility that the adversary is using denial and deception to influence U.S. perceptions and actions. This hypothesis should not be rejected until there is substantial evidence against this possibility.¹⁵⁴

Because the information pool expands dramatically every day, it is likely that analytical conclusions will be altered or proven wrong.¹⁵⁵ This means that as the analyst receives new information, keeping an open mind and accepting their analyses tentative nature is critical to accurately adapting their understanding of the world.¹⁵⁶ Whenever surprising information arises, consider that this information may be compatible with an alternative hypothesis that may have been rejected in hypotheses evaluation.¹⁵⁷ All things considered, as analysts attempt to form useful analyses with constantly increasing yet incomplete information on a strict timeline, biases are present and resilient, but can be guarded against.

¹⁵³ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 174-177, www.odci.gov/csi.

¹⁵⁴ *Ibid.*

¹⁵⁵ *Ibid.*

¹⁵⁶ *Ibid.*

¹⁵⁷ *Ibid.*

Part III: Reflexive Control and the United States

Several biases seem to have played a role in the United States' concept development of what reflexive control is and looks like in today's hybrid warfare age. This dilemma is an appropriate concern for the U.S. Intelligence Community as it deals with the nation's security and information warfare.

Ultimately, U.S. policymakers make the responsive decisions addressing reflexive control; however, analysts take part in informing these policymakers.¹⁵⁸ If well-informed decisions are to be made in response to Russian actions, then the analyst must attempt to increase the policymaker's understanding and reduce their uncertainty about reflexive control. While informing the policymaker on the facts and introducing an analysis, the analyst may also share the potential for probable biases regarding the matter at hand.

Recognizing these biases can be difficult.¹⁵⁹ The analyst's information environment consists of various sources, each having their own potential for bias.¹⁶⁰ The analyst's minimal control over the information presented to them is an obstacle in itself, but having various information sources that are often incomplete and conflict with on

¹⁵⁸ Amanda J. Gookins, "The Role of Intelligence in Policy Making," *The SAIS Review of International Affairs*, Vol. 28, No. 1, 2008, pp. 65-73.
<http://www.bard.edu/civicingagement/usfp/docs/gookins.pdf>.

¹⁵⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg.116, www.odci.gov/csi.

¹⁶⁰ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 115, www.odci.gov/csi.

another further complicates the analyst's judgments, especially when the analyst is under a time constraint to provide the policymaker with their analysis.¹⁶¹

Because everyone is different, each person has their own set of intelligence, concepts, knowledge, ideas, and experiences. Therefore, everyone reacts to information differently. Some people react using different biases while others react without using biases at all.¹⁶² As previously mentioned, biases are not always wrong. They are tools the brain uses to counteract the pressure of decision making under undesirable circumstances, like having too much useless information leaving gaps between important information and not having enough time to properly sort it all out.¹⁶³ This can be helpful, but the biases that participate in this process need to be identified and monitored when good judgment is imperative.

Overarching Biases

Once the brain establishes a perspective, it will adapt new information to this perspective. Thus, new information is accepted or rejected depending on its consistency with the established perspective.¹⁶⁴ Alterations to established perspectives are slow to

¹⁶¹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 115, www.odci.gov/csi.

¹⁶² Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 112, www.odci.gov/csi.

¹⁶³ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 4.

¹⁶⁴ Robert Jervis, *Why Intelligence Fails: lessons from the Iranian Revolution and the Iraq War*, Cornell University Press, Ithaca: 2010, Print, Pg. 169.

occur.¹⁶⁵ Ideally, analysts and policymakers would be open to information pointing to alternate perspectives, but the brain does not biologically function that way.¹⁶⁶ In other words, people's decisions rely more on perspective than on evidence.

Biases that shape these perspectives have a great potential to impact the United States' responses to Russian reflexive control. Though many of these biases can specifically effect U.S. reactions, several extend over all and play a role in more subjective circumstances. These include, the availability heuristic, vividness criterion, confirmation bias, illusion of validity, stereotyping, overconfidence, and loss aversion.

In relation to the availability heuristic and reflexive control, analysts and policymakers may rely on knowledge about Soviet disinformation tactics to make judgments on Russian disinformation. Because the Cold War holds the most memorable examples of reflexive control and disinformation, these instances and past judgments may still be readily available in analysts' or policymakers' minds. When the availability heuristic is used, these memories are used as the basis for current and future judgments. However, the Soviet Union used disinformation to achieve a different set of goals than Russia currently uses disinformation to achieve. As these goals are different, Russia's disinformation is used differently than the Soviet Union by provoking a different response from adversaries to achieve their goals. Basing perception about current Russian disinformation on Soviet disinformation is counterproductive as it enables Russia to act in today's world while U.S. policymakers respond to a memory decades old.

¹⁶⁵ Robert Jervis, *Why Intelligence Fails: lessons from the Iranian Revolution and the Iraq War*, Cornell University Press, Ithaca: 2010, Print, Pg. 169.

¹⁶⁶ Ibid.

Analysts typically work with secondhand information coming from other eyes and ears rather than experiencing the information for themselves.¹⁶⁷ However, when an analyst experiences information firsthand, it can have more influence on evaluations and decisions even if the information is not as important as other secondhand information.¹⁶⁸ This is called the vividness criterion. For instance, if an analyst or policymaker dealing with Russian reflexive control has traveled to Russia or spoken directly to a Russian government official, their perspective on Russian reflexive control may be altered. If a policymaker spoke directly to a Russian official, like Russian Ambassador Sergey Kislyak, their perception of the Russian government's goals and intentions may be tainted with an idea of the person they are familiar with.

In general, confirmation bias occurs through the patterns an analyst or policymaker expects in the mounds of information they receive on particular topic.¹⁶⁹ Both of these actors have expectations for the motives and processes of specific people and foreign governments.¹⁷⁰ Information consistent with these preconceptions are easy to add to the analysis, while contradictory information is not. This becomes a problem when System 1 applies the confirmation bias and the contradictory information is ignored or distorted. As mentioned before and further discussed later, reflexive control primarily

¹⁶⁷ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 116-117, www.odci.gov/csi.

¹⁶⁸ *Ibid.*

¹⁶⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 9, www.odci.gov/csi.

¹⁷⁰ *Ibid.*

uses disinformation in pursuit of Russia's goals.¹⁷¹ Confirmation bias can be dangerous in this case because disinformation can be spread to reinforce false beliefs, while making it easier to dismiss accurate information.

Another way biases shape the United States' reflexive control perspective is by assuming Russia's actions that are similar in execution have the same purpose. A previously observed pattern draws connections between the same pattern and new information to maintain consistency; however, this can be deceptive.¹⁷² The illusion of validity can lead an analyst or a policymaker to believe that everything Russia does is connected and designed for the same purpose. This is even made worse when one does not understand Russian objectives. Stereotyping leads to assuming that just because Russia is involved in something or some place, then a certain element of a perceived Russian objective is involved as well.

When evaluating evidence, analysts hold confidence levels in the validity and reliability of the evidence and their own judgments.¹⁷³ In this manner, analysts are not typically susceptible to overconfidence in information, but rather in their analyses.¹⁷⁴ This may prevent the analyst from accurately applying new information to an alternate view of their analysis because of their mental tie to their pre-existing judgment.

¹⁷¹ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

¹⁷² Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 120-121, www.odci.gov/csi.

¹⁷³ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 122-123, www.odci.gov/csi.

¹⁷⁴ *Ibid.*

Because perspective alters slowly, letting go of integrated information that is later proven false is difficult.¹⁷⁵ This explains how loss aversion affects analysts and policymakers' responses to events. Since disinformation is such a large part of reflexive control, analysts and policymakers must be able to disregard false information they once thought was true. Otherwise, they may make judgments that undermine effective responses to reflexive control.

The brain's formed perspective is primarily responsible for a person's judgments and decisions. Aside from the previously mentioned biases that extend over a large range of situations, other biases can be seen in the way the West understands Russian reflexive control and has reacted to the technique in specific instances. In the following sections, these instances will be further explained, and Western literature on Russian reflexive control will be examined.

Specifics and Generalities

One way biases have hindered the West's understanding of Russian reflexive control is that too much emphasis has been placed on specifics and not enough on the general details or big picture.

Russia's military development not only relies on industrial and infrastructural improvements, but also innovation in military thought.¹⁷⁶ Military thought is the manner

¹⁷⁵ Daniel Kahneman, *Thinking, Fast and Slow*, Farrar, Straus, and Giroux, New York: 2011, Print, Pg. 305-309.

¹⁷⁶ Timothy Thomas, "Think Like A Russian Officer: Basic Factors And Contemporary Thinking On The Nature Of War," *The Foreign Military Studies Office*, April 2016, [http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20\(final\).pdf](http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20(final).pdf).

in which the Russian military assesses the current war environment and projects an idea of the future war environment. Timothy Thomas states, “These developments and thought processes need to be studied and digested by Western analysts so that they can offer US decision-makers their best estimate of the character of Russia’s future war thought, the direction in which Russia’s military appears to be heading, and, thus, the types of actions that could either support or deter Russian plans.”¹⁷⁷ To broaden the focus of U.S. officials, analysts and policymakers must understand the effect that base rate neglect has on their judgment.

Base rate neglect has influenced U.S. officials to focus more on hybrid actions, tactics, and techniques rather than on the underlying methods and forms of military thought. Forms are the organizational constructs of military thought, while methods consist of available weapons and military doctrine. Timothy Thomas also concludes that the forms and methods of Russian military thought are “often ignored in the West, perhaps because they appear almost neutral or vanilla in meaning.”¹⁷⁸ Whatever the reason they are disregarded, the two concepts are vital to understanding how Russia uses the shift in war from a contemporary to hybrid nature.¹⁷⁹

While Russian reflexive control originated in the Soviet Union, Russia’s military thought has developed persistently since the end of the Cold War.¹⁸⁰ Therefore, Russian

¹⁷⁷ Timothy Thomas, “Think Like A Russian Officer: Basic Factors And Contemporary Thinking On The Nature Of War,” *The Foreign Military Studies Office*, April 2016, [http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20\(final\).pdf](http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20(final).pdf).

¹⁷⁸ *Ibid.*

¹⁷⁹ *Ibid.*

¹⁸⁰ Keir Giles, “Russia’s ‘New’ Tools for Confronting the West,” (Research Paper, The Royal Institute of International Affairs, 2016), <https://www.chathamhouse.org/publication/russias-new-tools-confronting-west>.

and Soviet reflexive control are disparate because of the underlying military thought that developed them. Western literature portrays reflexive control by evaluating specific instances of hybrid actions, as seen in Ukraine, and comparing them to Soviet tactics. By using these specifics to assess reflexive control, the West inadequately responds to Russian disinformation and misunderstands Russian objectives.¹⁸¹

The law of small numbers is another bias effecting the U.S. perspective on reflexive control. Similar to the narrative fallacy, later discussed in this part, the law of small numbers leads U.S. officials to use a few events involving Russian reflexive control or Russian reflexive control in one area of the world to create a narrative answering questions like what reflexive control is, how Russia uses reflexive control, and what Russian intentions are. Western analysts have written assessments of reflexive control based on Russia's involvement in Eastern Europe, specifically Ukraine and Crimea. Most Western literature uses these cases to define and predict Russian actions.¹⁸² Though these are leading examples of present day reflexive control, they are too concentrated to one region as Russia's goals in Eastern Europe are different from their goals in other regions of the world.¹⁸³

¹⁸¹ Keir Giles, "Russia's 'New' Tools for Confronting the West," (Research Paper, The Royal Institute of International Affairs, 2016),

<https://www.chathamhouse.org/publication/russias-new-tools-confronting-west>.

¹⁸² See Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>; Keir Giles, "Russia's 'New' Tools for Confronting the West," (Research Paper, The Royal Institute of International Affairs, 2016), <https://www.chathamhouse.org/publication/russias-new-tools-confronting-west>; Can Kasapoglu, "Russia's Renewed Military Thinking: Non-Linear Warfare and Reflexive Control," *NATO Defense College*, No. 121, November 2015.

¹⁸³ "International Security and Estonia," *Estonian Information Board*, 2017.

Disinformation, Framing, and Anchoring

Currently, Russia uses offensive and defensive disinformation as part of its reflexive control campaign.¹⁸⁴ Russia's disinformation seems to be most useful when it has an anchoring effect or framing effect on the adversary. In terms of the anchoring effect, it is the bias that hooks or primes the decision-maker and guides them to make the decision Russia intends for them to make. Similarly, the framing effect depends on the way disinformation is presented to the adversary thus encouraging a Russian-crafted perspective.

When a Russian official makes a statement, U.S. analysts have to decide if the statement is directed domestically or internationally, and if it is truthful or designed to deceive foreign policymakers. These decisions are made with the understanding that Russia is an independent, uncontrollable entity with the potential to manipulate the United States; however, the impact disinformation has on the analyst is not reduced.¹⁸⁵ As Russian officials make disinformation effortless for System 1 to process, the analyst's brain involuntarily accepts the information making analysis more difficult as more assumptions are formed and must be assessed.

In past and recent instances regarding the United States and Russia, the anchoring effect and framing effect have been present. The most commonly used past example is

¹⁸⁴ Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

¹⁸⁵ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 123-124, www.odci.gov/csi.

Russia's invasion of Ukraine and the effect Russia's initial statements had on NATO leaders. Though NATO possessed enough evidence that supported the events' true nature, Russia used several of the D's in the reflexive control 4D approach to thwart a timely NATO response. Russia's repeated denial of their involvement in Ukraine, the distortion of facts about Russian soldiers (blame placed on rogue soldiers) and Russia's nonexistent war declaration delayed NATO's response because of uncertainty and the lasting effect of Russia's influential disinformation.¹⁸⁶ In this case, the way Russia framed its information effected NATO's response though they were aware of the existing contrary evidence.

One recent example is the way Russia has used anchoring to frame the Western approach to democracy as unstable and corrupt. During the 2016 U.S. presidential election, a Russian government-linked cyber hacking group attacked the Democratic National Committee and leaked information to WikiLeaks that revealed the rigged selection of the Democratic Party's presidential candidate, Hillary Clinton.¹⁸⁷ This instance is an example of Russia's attempt to reveal corruption in the U.S. democratic election system – the foundation of modern Western democracy.

Russia has framed Western governments as corrupt in the public's perception. Now, the public is anchored on this perception and view it as fact. From this point

¹⁸⁶ Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

¹⁸⁷ Dmitri Trenin, "Information is a potent weapon in the new cold war," *The Guardian*, September 17, 2016, <https://www.theguardian.com/commentisfree/2016/sep/17/hacking-politics-us-russia>.

forward, it is likely that any issue with democratic elections or Western governments will encourage the public to question the validity of the democratic government system.

Past v. Present and Future

Using the past as the framework for the present and future narrows the scope of probabilities for analysts and policymakers to consider. In return, Russia's opportunities to use reflexive control are broadened. Four biases, in particular, seem to have attributed to this and are exhibited in much of the Western literature on Russian reflexive control. These include the halo effect, hindsight bias, narrative fallacy, and gambler's fallacy.

According to Richards J. Heuer, Jr., "the use of [narrative] coherence rather than scientific observation as the criterion for judging truth leads to biases that presumably influence all analysts to some degree."¹⁸⁸ Narrative coherence may be formed based on an analyst's partiality to a certain explanation based on subjective reasons.¹⁸⁹ For example, literature on reflexive control exhibits the halo effect as many analysts place a large emphasis on Putin's KGB background to support the claim that Russian reflexive control is the same as Soviet reflexive control.¹⁹⁰ In all actuality, this only explains why reflexive control was chosen as a tactic, not how or for what reasons Russia uses reflexive control.

¹⁸⁸ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 129, www.odci.gov/csi.

¹⁸⁹ *Ibid.*

¹⁹⁰ Luke Harding, "Spies, sleepers and hitmen: how the Soviet Union's KGB never went away," *The Guardian*, November 19, 2014, www.theguardian.com/world/2014/nov/19/spies-spoops-hitmen-kgb-never-went-away-russia-putin.; Andrei Soldatov, "Putin Has Finally Reincarnated the KGB," *Foreign Policy*, September 21, 2016, <http://foreignpolicy.com/2016/09/21/putin-has-finally-reincarnated-the-kgb-mgb-fsb-russia/>.

Also, many analysts have given Russia's 2014 involvement in Crimea and Ukraine a halo effect by using it as a catch-all explanation for reflexive control. Though these instances are prime examples of Russian reflexive control and exemplify much of Russia's hybrid warfare doctrine,¹⁹¹ too much focus on these specific instances may lead analysts and policymakers to compare them to current and future instances. Though these instances provide valuable insight into Russian reflexive control, reflexive control can be used in many other ways (not used in Ukraine or Crimea) and in other parts of the world.

As in Ukraine and Crimea, Russia is likely attempting to slowly integrate other former Soviet states, like Ukraine and Crimea, into its sphere of influence.¹⁹² Jeffrey Mankoff, deputy director of the Russia and Eurasia Program at the Center for Strategic and International Studies stated that Russia's grand strategy is "based on rolling back the spread of Western values and institutions... and establishing a sort of Russian world, at least in the areas around Russian borders."¹⁹³ This is a probable explanation for Russia's actions in the region. However, it is highly doubtful that Russia is attempting to influence the United States the way it means to influence Ukraine, which means Russia's interests and goals it has for the United States are different. If current and future instances are placed in the Ukraine-Crimea framework, then analysts and policymakers may ignore important information that does not fit the mold.

¹⁹¹ Can Kasapoglu, "Russia's Renewed Military Thinking: Non-Linear Warfare and Reflexive Control," *NATO Defense College*, No. 121, November 2015.

¹⁹² "International Security and Estonia," *Estonian Information Board*, 2017.

¹⁹³ Priyanka Boghani, "How Russia Looks To Gain Through Political Interference," *PBS Frontline*, December 23, 2016, <http://www.pbs.org/wgbh/frontline/article/how-russia-looks-to-gain-through-political-interference/>.

In light of hindsight bias, the Western perspective of Soviet reflexive control and past Russian actions seem to become further shaped as the West is more exposed to reflexive control in Russia's current actions. The gap between the two concepts shrinks smaller and smaller with every new action Russia takes. This has led to the blurred line between Soviet and Russian reflexive control in current literature. Also including the gambler's fallacy, some literature references Soviet reflexive control, compare it to Russian reflexive control, and assume it should have the same elements. With this assumption, it is hinted that current and future reflexive control actions should be predictable because of the United States' experience with Soviet reflexive control.

For example, a former consultant at the Institute for the Study of War, Maria Snegovaya states, "...Russia's 'newly' launched information war is no different from the disinformation instruments that were widely used by the Soviets against the West in the second half of 20th century." Snegovaya continues to say, "...basic analysis reveals that all of the main principles and approaches the Russian government utilizes today were taken from Soviet toolkits."¹⁹⁴ Though it is true that Soviet and Russian reflexive control share basic similarities, the eras in which these have been used are completely different. As these techniques look equal at face value, Russia uses reflexive control in different ways and often times for different goals than the Soviets.¹⁹⁵ If analysts view reflexive control as a Soviet tool, then they likely will be blind to Russian innovation making it easier for Russia to use reflexive control.

¹⁹⁴ Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

¹⁹⁵ Reference Part I for differences between Soviet and Russian reflexive control.

Another bias present in Western literature is the narrative fallacy. This bias takes Russia's past actions and applies it to present and future expectations of Russian actions; however, Russia's plans for action change as the adversary adjusts to Russia's apparent strategy. According to Timothy Thomas, Russia has goals in place, but not an overarching plan for reaching them. Though more structured than a play-by-ear strategy, Russia's agenda adjusts consistently with the adversary's social, political, and psychological changes. Russian General Staff Chief Valery Gerasimov explains, "each situation has a logic on its own." At each stage of an action, Russia re-evaluates their adversary and the developing situation to decide their next step in achieving their end goal.¹⁹⁶ Contrary to much of the literature using past Russian acts as reflexive control examples, Russian involvement in Crimea, Ukraine, Estonia, and Georgia each had their own specific needs for Russia to achieve their goals. For example, cyber actions were all that was needed for Estonia, while cyber as well as direct action was needed for Georgia. Direct force was needed in Crimea, while surrogate support in the form of indirect force was needed in Eastern Ukraine.¹⁹⁷ Each of these instances included reflexive control, but each differed from the other in form or method.

The instances mentioned above only account for the area surrounding Western Russia. The change in form and method would probably be different for the United States and other areas of the world. Therefore, an understanding of the forms and methods underlying these tactics would better prepare the United States for how Russia might use

¹⁹⁶ Timothy Thomas, "Think Like A Russian Officer: Basic Factors And Contemporary Thinking On The Nature Of War," *The Foreign Military Studies Office*, April 2016, [http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20\(final\).pdf](http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20(final).pdf).

¹⁹⁷ *Ibid.*

reflexive control in different regions.¹⁹⁸ This is not so much a problem with intelligence analysts as it is with analysts publishing literature on reflexive control while not understanding the basic forms and methods that shape this warfare. If policymakers rely more on these kinds of analyses that use face-value information rather than analyses that take Russia's guiding principles into account, then policymakers will likely be misguided into reacting to reflexive control the way Russia expects and desires.

Russia and the West

At last, there are a few biases that stem from the United States specifically. The failure to understand Russia's national interests may cause U.S. officials to assume they share the same perspective as Russian officials.¹⁹⁹ Mirror-imaging is one bias that leads the U.S. analyst or policymaker to assume Russia's self-interest pushes them to act in a way the United States would. This is dangerous because people in the Russian government do not think exactly like people in the U.S. government.²⁰⁰

However, Russia might be falling to mirror-imaging. Russia is likely attempting to create unstable conditions in the United States and West that mimic Russia's societal issues. For instance, Russia's 2016 parliamentary elections, which occurred on September 18, held the lowest voter turnout since the Soviet Union collapse.²⁰¹ Former

¹⁹⁸ Timothy Thomas, "Think Like A Russian Officer: Basic Factors And Contemporary Thinking On The Nature Of War," *The Foreign Military Studies Office*, April 2016, [http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20\(final\).pdf](http://fmso.leavenworth.army.mil/documents/Thinking%20Like%20A%20Russian%20Officer_monograph_Thomas%20(final).pdf).

¹⁹⁹ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 70, www.odci.gov/csi.

²⁰⁰ *Ibid.*

²⁰¹ Sarah Rainsford, "Russian elections: What we learned," BBC News, September 19, 2016, <http://www.bbc.com/news/world-europe-37410725>.

Russian Prime Minister Mikhail Kasyanov, along with other Russian officials, blames the low turnout on a national loss-of-faith in the Russian voting system.²⁰² Loss of public faith in the domestic political system is what led to the Soviet demise.²⁰³ Probably Russia's intention, U.S. citizens and policymakers fear Russian election manipulation forming a similar loss-of-faith in the 2016 presidential election outcome.²⁰⁴

Russia's societal issues also include a major division between their population due to an enormous income gap. Most of Russia's wealth is concentrated in only 10 of the country's 85 regions with the median income falling close to the poorest 10% of regions.²⁰⁵ As the income gap has grown and the cost of living has risen, Russian citizen's dissatisfaction has led to an increase in non-political protests. This is a major focus for the Russian government as they act to contain dissatisfaction by focusing domestic attention on propaganda blaming the West for Russia's economic strife.²⁰⁶

The Russian government has been actively supporting extreme political parties on the far-left and far-right in Western countries in the 2016/2017 elections.²⁰⁷ These parties help Russia spread their propaganda among the Western public, and Russia provides the groups with financial and diplomatic support.²⁰⁸ For example, Marine Le Pen, leader of

²⁰² Sarah Rainsford, "Russian elections: What we learned," BBC News, September 19, 2016, <http://www.bbc.com/news/world-europe-37410725>.

²⁰³ Dmitri Trenin, "Information is a potent weapon in the new cold war," *The Guardian*, September 17, 2016, <https://www.theguardian.com/commentisfree/2016/sep/17/hacking-politics-us-russia>.

²⁰⁴ *Ibid.*

²⁰⁵ "International Security and Estonia," *Estonian Information Board*, 2017.

²⁰⁶ *Ibid.*

²⁰⁷ Priyanka Boghani, "How Russia Looks To Gain Through Political Interference," *PBS Frontline*, December 23, 2016, <http://www.pbs.org/wgbh/frontline/article/how-russia-looks-to-gain-through-political-interference/>.

²⁰⁸ "International Security and Estonia," *Estonian Information Board*, 2017.

National Front in France received a 9-million-euro loan from Moscow in 2014 after expressing during the Crimea crisis that National Front and Russia “defend common values”, and in 2016 asked Russia for a 27-million-euro loan as the elections in France are approaching.²⁰⁹ In Germany, Russia has two parties in the 2017 election: both the far-right, Alternative fur Deutschland, and far-left, Die Linke.²¹⁰ Russia’s intention is likely to influence these governments for a more pro-Russian attitude within the Western countries causing division in domestic politics and Western institutions, like NATO.²¹¹

If Russia is acting under mirror-imaging, what Russia may not be taking into account is the United States’ long history of functioning under societal and political division.²¹² Understanding this possible flaw in Russian decision making could give the United States an edge over Russia in the information warfare age.

Another bias is the endowment effect that encourages the analyst or policymaker to underestimate Russia’s capabilities because of an overestimation or glamorization of U.S. abilities. For example, it may be expected that Russian hackers would attempt to destabilize trust in the U.S. election. One possible reason for this is that U.S. citizens hold so much value to the U.S. system and U.S. capabilities that they assume no one would ever attack it. In this case, they may have overestimated the value of the U.S. system and its value to other countries in part because it is their system. They overvalue the U.S.

²⁰⁹ Priyanka Boghani, “How Russia Looks To Gain Through Political Interference,” *PBS Frontline*, December 23, 2016, <http://www.pbs.org/wgbh/frontline/article/how-russia-looks-to-gain-through-political-interference/>.

²¹⁰ “International Security and Estonia,” *Estonian Information Board*, 2017.

²¹¹ *Ibid.*

²¹² Russell Berman, “What’s the Answer to Political Polarization in the U.S.?” *The Atlantic*, March 8, 2016, <https://www.theatlantic.com/politics/archive/2016/03/whats-the-answer-to-political-polarization/470163/>.

system to the point they thought it was too valuable to everyone to be in danger of destabilization attempts. This is a way the endowment effect influences U.S. perspective on Russian reflexive control.

Perspective is quick to form and resistant to change.²¹³ The United States' rejection of change displays the status quo bias which leads U.S. policymakers to make decisions based on the assumption that things will remain the same. More outlets for reflexive control disinformation exists today than in the Cold War, which means the United States must be prepared for changes in Russian tactics. Though reflexive control is far from being a new concept, significant changes have been made to Russian counterintelligence techniques since the Soviet days.²¹⁴

As shown in recent Russian actions against the West and the United States, one of Russia's goals is likely to weaken the West by dividing the NATO member states, and destabilize the image of the West (specifically democracies) to the rest of world (especially the developing world).²¹⁵ Several analysts warn about the new world order on the rise.²¹⁶ Or, as Russian Foreign Minister Sergey Lavrov calls it, the "post-West world

²¹³ Richards J. Heuer, Jr., *Psychology of Intelligence Analysis*, Central Intelligence Agency: Center for the Study of Intelligence, 1999, Print, Pg. 10 – 11, www.odci.gov/csi.

²¹⁴ Jon White, "Dismiss, Distort, Distract, and Dismay: Continuity and Change in Russian Disinformation," (Policy Brief, Institute for European Studies, 2016), <http://www.ies.be/node/3689>.

²¹⁵ Luke Harding, "Spies, sleepers and hitmen: how the Soviet Union's KGB never went away," *The Guardian*, November 19, 2014, www.theguardian.com/world/2014/nov/19/spies-spoors-hitmen-kgb-never-went-away-russia-putin; Maria Snegovaya, "Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare," (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

²¹⁶ Robert Kagan, "The twilight of the liberal world order," *The Brookings Institution*, January 24, 2017, <https://www.brookings.edu/research/the-twilight-of-the-liberal-world-order/>.

order.”²¹⁷ It may be difficult for U.S. policymakers to picture the world differently and recognize the potential for the status quo to be threatened and to change. The status quo bias creates the inability of Western officials to accept the possibility that the current world order could change or is changing. Also, it inhibits adjustment to think according to these changes.

Different than Soviet reflexive control, today’s Russian reflexive control uses disinformation to destroy pieces of the adversary’s infrastructure.²¹⁸ One of Russia’s interests involves changing the current world order.²¹⁹ To do this, Russia aims to discredit the West and cause domestic unrest in the European Union and NATO states to divide Western international institutions.²²⁰ To discredit the West, Russia is likely working to expose corruption and sowing distrust within the public-government-media triad to undermine the core of Western democracy.

One example of Russia’s attempt to disrupt this triad is through the term, “fake news”. Russian Kremlin-backed propaganda outlet, *Russia Today (RT)*, launched its own

²¹⁷ “Russia’s foreign minister calls for ‘post-West world order’ in speech to global leaders,” *Independent*, February 18, 2017, <http://www.independent.co.uk/news/world/europe/russia-post-west-world-order-lavrov-munich-security-conference-nato-trump-putin-ukraine-syria-assad-a7587006.html>.

²¹⁸ Maria Snegovaya, “Putin’s Information Warfare in Ukraine: Soviet Origins of Russia’s Hybrid Warfare,” (Russia Report 1, Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare>.

²¹⁹ Fareed Zakaria, “Vladimir Putin wants a new world order. Why would Donald Trump help him?” *The Washington Post*, December 15, 2016, https://www.washingtonpost.com/opinions/vladimir-putin-wants-a-new-world-order-why-would-donald-trump-help-him/2016/12/15/ad12a046-c30d-11e6-8422-eac61c0ef74d_story.html?utm_term=.3e1ecfc18d8f.

²²⁰ “International Security and Estonia,” *Estonian Information Board*, 2017.

website called FakeCheck to “distinguish between what is real and what is fake news.”²²¹

For instance, the site is “investigating” whether or not the CIA developed and spread Ebola and the U.S. government planned the 9/11 terrorist attacks.²²²

This is a threat to democracy as this term’s use attempts to undermine the credibility of the main democratic institution meant to hold the government accountable.²²³ President Trump has repeatedly banned journalists from the White House under the accusation that their reports are “fake news”.²²⁴ If the government does not inform the media, then the media cannot do their job properly and inform the public. When the government encourages the public to distrust the media, then the public will not believe the media even if the news is the truth. In the end, the public is unaware of the government’s actions and their effects on the public’s livelihood. This gives the government incentive to disregard voter opinion as voters will not be informed anyway. In the end, all three parts of the triad distrust one another creating an unstable more polarized national system²²⁵. Biases such as mirror-imaging, the endowment effect, and

²²¹ Will Oremus, “Irony Dies Again as Russia Today Launches Fake-News Debunker,” *Slate*, March 15, 2017, http://www.slate.com/blogs/the_slatest/2017/03/15/russia_today_launches_fake_news_debunker_fakecheck.html.

²²² *Ibid.*

²²³ Danielle Kurtzleben, “With ‘Fake News,’ Trump Moves From Alternative Facts To Alternative Language,” *NPR*, February 17, 2017, <http://www.npr.org/2017/02/17/515630467/with-fake-news-trump-moves-from-alternative-facts-to-alternative-language>.

²²⁴ Julie Hirschfeld Davis and Michael M. Grynbaum, “Trump Intensifies His Attacks on Journalists and Condemns F.B.I. ‘Leaders’,” *The New York Times*, February 24, 2017, <https://www.nytimes.com/2017/02/24/us/politics/white-house-sean-spicer-briefing.html>.

²²⁵ Danielle Kurtzleben, “With ‘Fake News,’ Trump Moves From Alternative Facts To Alternative Language,” *NPR*, February 17, 2017, <http://www.npr.org/2017/02/17/515630467/with-fake-news-trump-moves-from-alternative-facts-to-alternative-language>.

the status-quo bias may hinder the West's ability to accurately assess Russia's capabilities against the West.

In order to understand a technique aimed at decision-making, like reflexive control, understanding how decisions are made and the flaws in the process is essential. Though these are just a few of the immediate biases one can point out from Western literature and examples of U.S-Russian relations, understanding them can increase the quality of U.S. decision-making. Recognizing U.S. cognitive biases is the first step to combating Russian reflexive control.

Conclusion

This paper set out to answer the question: do cognitive biases make the United States vulnerable to Russia's use of reflexive control? Though very few pieces of literature connect cognitive biases and reflexive control, the literature on cognitive biases focuses on flawed decision-making, while the literature on reflexive control focuses on its manipulation of flaws within the adversary's decision-making process. Therefore, cognitive biases should make any country or individual's decision-making process vulnerable to reflexive control. After exploring previous analysis and observations on both reflexive control and cognitive biases, the concluding answer was found to be *yes*. Cognitive biases weaken the decision-making process making it reflexive control easier to use and more effective.

This paper's conclusion creates its own place among the literature on reflexive control as it connects the field of psychology and demonstrates how this field is critical to understanding the use and effects of reflexive control. As mentioned in Part III, cognitive biases and their effects on judgment and decision-making explains certain instances with U.S.-Russian relations. Cognitive biases are recognizable when observing the West and the United States' reactions to Russia's use of reflexive control. If the United States becomes more proactive in recognizing and combating cognitive biases, then the United States will be better defended against Russian reflexive control.

Findings in observing U.S.-Russian relations indicate that cognitive biases can explain how Russian reflexive control is an efficient strategy against the United States.

However, there remain some avenues for further research on the connection between cognitive biases and reflexive control. For instance, are certain cognitive biases more or less detectable than others? Identifying differences, such as detectability, between biases could clarify the challenges they pose individually.

Research and observations support the claim that cognitive biases make the United States vulnerable to reflexive control. However, further research is needed on the connection between these topics. Though understanding and recognizing cognitive biases could aid in guarding against reflexive control, more questions must be answered to fully protect the United States and the U.S. decision-making process from Russian reflexive control.

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