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Claremont McKenna College

The US-UK Nuclear Relationship: Not Just a Measure for
the Cold War

submitted to
Professor Jennifer Taw

by
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for
Senior Thesis
Spring, 2017
April 24th, 2017

Acknowledgements

Although I have never especially enjoyed writing, this project and my college career would not have been possible without doing so. Whatever skill I have in writing I owe, first and foremost, to my parents, who made me write letters and edited my papers as I grew up. They also gave me the opportunity to read widely and develop a penchant for history and politics, two topics reflected in this thesis. For this and everything else they have given me they have my deepest gratitude. I also owe many, many thanks to Professor Taw whose course, War, forced me to write more than I had ever done before and who has guided me through thesis, offering comments, suggestions, and help. While I thank my sister for not hitting me over the head too many times as a child, it is to my sister in law that I owe thanks for her help in creating the figures in Chapter 4.

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Introduction

On July 16, 2016, the British House of Commons voted 472 to 117 to renew the United Kingdom's nuclear deterrent, four ballistic missile submarines carrying Trident missiles.¹ This vote also assured continued British-American cooperation on nuclear weapons under the terms of the 1958 Mutual Defense Agreement and 1982 Trident Sales Agreement. Whereas the United Kingdom describes its system as an independent nuclear deterrent, it uses American built, owned, and designed missiles to carry nuclear warheads. If the moment ever comes to launch one of these missiles in anger, the British crew will then use a fire control systems designed and built by American defense contractor General Dynamics to complete the mission.² This level of cooperation and integration in such a sensitive and classified system is unprecedented and symbolic of the relationship between the United States and the United Kingdom on nuclear matters. This study will examine the relationship by tracing its roots through the Cold War,

¹ "MPs vote to renew Trident weapons system," *BBC News*, July 19, 2016, <http://www.bbc.com/news/uk-politics-36830923>.

² "U.S. Navy Extends General Dynamics' Fire Control Systems Work for U.S. and U.K. SSBN Submarines," *General Dynamics*, February 2, 2016, <http://www.generaldynamics.com/news/press-releases/2016/02/us-navy-extends-general-dynamics%E2%80%99-fire-control-systems-work-us-and-uk>.

determining each side's interest in the current arrangement, and looking at the agreement in the present international context.

In chapter one, we find that despite some miscommunication and political mistakes, the history of US-UK nuclear relations shows a pragmatic attitude on the side of the United States that best reflects a Realist view of international relations. Although the United States initially chose to keep nuclear weapons technology for itself, to maximize its relative power, once it became clear that the Soviet Union had acquired the same technology, the United States shifted course to collaborate with the United Kingdom. In the process, the United States created a unique, indeed a "special," relationship. This helped balance the perceived threat from the Soviet Union. Decades later, the special relationship has nonetheless outlasted the dissolution of the Soviet Union.

In chapter two, we examine why the United Kingdom continues to maintain an interest in the agreement and we focus on the cost savings. Already spending a much greater portion of its defense budget on its nuclear deterrent than the United States, the United Kingdom might not be able to afford a completely separate program. Although the country has discussed disarmament in the past, it does not wish to do so, given the security benefits, worldwide recognition, and increased importance within NATO that nuclear weapons capabilities yield. Yet, these benefits come at a cost. The United Kingdom faces restriction on further nuclear research with other states, has seen political decisions impacted by it, and is criticized for its stance on non-proliferation. Moreover, they lead the United Kingdom to buy the most expensive nuclear weapons technology.

Chapter three focuses on the United States' interest in the agreements. While cost savings are again a feature, the use of the Diego Garcia base in the Indian Ocean, negotiated with the UK as part of the special relationship, is significantly more valuable, as it allows the United States to operate freely in an important strategic zone. However, this comes at a high cost for the United States, through the burden that the Trident missile imposes on the United Kingdom. Following budget cuts, the United Kingdom's military has had to sacrifice conventional capabilities to maintain its current nuclear deterrent, negatively impacting US military plans and forecasts.³

Finally, chapter four looks at the US-UK nuclear relationship within a wider context, including all nuclear weapons states and their relationships with each other. The United States, France, and the United Kingdom have the strongest links to one another, focused on research. The interactions between these countries can be modeled similarly to alliances, allowing us to bring in the lessons learned from alliance theory. This shows that the multiple bilateral ties complicate friendly interactions but make arms accords easier to negotiate.

This brings us to the conclusion that the current relationship, set to continue indefinitely, is a complex balancing act. Although the United States might benefit, in the big picture, from the United Kingdom's disarmament, it does not wish to lose access to Diego Garcia. The United Kingdom, for its part, has made a long term commitment with the move to build a new generation of submarines that will be in service into the 2040s.

³ Con Coughlin, "US fears that Britain's defence cuts will diminish Army on world stage," *The Telegraph*, March 1, 2015, <http://www.telegraph.co.uk/news/uknews/defence/11443204/Britain-is-becoming-a-friend-who-cant-be-trusted-says-top-US-general.html>.

By that time, the special relationship, born out of the Cold War, new technology, and common threat, will be nearing its centenary. A cause for celebration, this should also lead the states to a thorough review of the agreements taking into account the security situation at that time.

Chapter 1

A Special Relationship in a New World: 1942-2016

World War II and the development of the atomic bomb are two episodes in history which have been amply recounted. The United Kingdom provided the United States with advanced technology at the beginning of the war. Known as the Tizard Mission, the United Kingdom most notably shared with the United States research into radar, which went on to play an important role for the Allies. The Tizard Mission is also when the United Kingdom first shared information with the United States about nuclear weapons.¹ Specifically, the United Kingdom shared a copy of the Frisch–Peierls memorandum, which explained how an atomic bomb would work. The United States mostly ignored the memorandum, which meant that Britain’s MAUD committee, tasked with determining the feasibility of atomic weapons and atomic power, soon found itself ahead of American research efforts.² After the British initially rebuffed President Roosevelt’s offer that the two countries collaborate on research into atomic weapons in

¹ For more information about the Tizard Mission, see David Zimmerman, *Top Secret Exchange: The Tizard Mission and the Scientific War* (McGill-Queen’s University Press, 1995).

² Amusingly, MAUD is not in fact an acronym for anything.

October 1941,³ the British rethought their position in 1942 and the collaboration was codified in the Quebec agreement of 1943. Britain became the “junior partner”⁴ in the project, however, as the United States was able to devote considerably greater resources to it than Britain had. This cooperation, to the surprise of the British, would not last long.⁵ Instead, the United States embraced a Realist’s view of international relations and attempted to monopolize its new power and assure its hegemony. As the history makes clear, this was just the first in several missteps and bad decisions that each side would make, often due to poor individual-level decisions.

Though it is common to think that the ‘special relationship’ between the United States and the United Kingdom has existed forever (or at least since World War II), the history of nuclear cooperation between the two countries shows a very different story. After a slow start during World War II, cooperation came to an end in 1946 when Congress passed the Atomic Energy Act of 1946 (or McMahon Act). The McMahon Act ended all collaboration between the two countries on atomic weapons and came as a “great shock to Britain.”⁶ Coming in response to revelations of espionage by the Soviet Union within the atomic weapons program, the McMahon Act was meant to stop nuclear proliferation and thus give the United States a nuclear monopoly. In this, the legislation was spectacularly unsuccessful as the Soviet Union detonated its first atomic bomb in 1949 and Britain followed suit in 1952. While it goes beyond the scope of this paper to examine in depth why the United Kingdom felt the need to develop nuclear weapons, two

³ See Roosevelt’s letter to Churchill of October 11, 1941, http://www.fdrlibrary.marist.edu/resources/images/atomic/atomic_02.pdf, 72.

⁴ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons* (New York: St. Martin’s Press, 2000), 15.

⁵ The Canadians were also surprised, but really, who ever actually cares about what the Canadians think?

⁶ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 15.

central reasons should be identified. First, the United Kingdom saw nuclear weapons as the hallmark of a great power and considered that if it were not to develop them it would lose claim to this title. This was unacceptable to the British government who considered the country to still be an Empire.⁷ Second, the United Kingdom did not feel confident in its ability to rely on the United States for help in future conflicts. As Clement Atlee explained, “we had to bear in mind that there was always the possibility of their withdrawing and becoming isolationists once again.”⁸ With only 16 years between the passage of the McMahon Act and the Polaris Sales Agreement, relations therefore fluctuated quickly between distrust and amity.

In his study of the relationship between the United States and the United Kingdom concerning nuclear matters during the Kennedy and Macmillan administrations, Donnette Murray identifies military links forged during World War II as crucial. A history of resource sharing, joint planning, and coordination carried over such that even though the United States implemented the McMahon Act, their militaries continued to collaborate. This included allowing the United States to base nuclear-capable B-29 bombers in the United Kingdom, beginning in 1948, without any formal agreement or oversight of their actions. Additionally, the United States loaned bombers to the United Kingdom in 1950.⁹ These continued interactions led the United States military to argue that it should be allowed to collaborate with the United Kingdom on nuclear matters so as

⁷Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 31-32.

⁸ John Baylis, *Anglo-American Defense Relations, 1939-1984: The Special Relationship* (London: Macmillan, 1984), 33.

⁹ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 16-17.

to develop better weapons and help to better protect the United Kingdom, and, through it, the United States.¹⁰

Military cooperation continued throughout the Korean War, where the United Kingdom was a major participant. With the arrival of the Eisenhower administration in 1953, US attitudes about nuclear collaboration with the United Kingdom changed again. In 1954 Congress passed a new Atomic Energy Act which amended that of 1946. Although it did not allow for the same freedom of collaboration as had taken place during World War II, the Atomic Energy Act of 1954 allowed the United States to collaborate on nuclear technology with countries that had achieved similar, independent, technical progress. This was the result of changing attitudes in the United States about the threat from the Soviet Union and the need for allies to help balance the Soviet Union's power, especially in Europe. At the time, this requirement for technical progress was meant only for the United Kingdom.¹¹ Work began immediately on research and implementation. In 1954, the Sandys-Wilson and Wilson-Alexander agreements were signed. These provided for "US technical assistance to a British ballistic missile program"¹² and created a joint understanding of how the United Kingdom would use its nuclear forces.¹³ In 1955, classified programs began with the aim to modify British bombers to carry American atomic and hydrogen bombs.¹⁴ Most importantly for the United States, Macmillan

¹⁰ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 18.

¹¹ And the Soviet Union, of course, but that was unlikely to happen for other, obvious, reasons.

¹² Benjamin Cole, "Soft Technology and Technology Transfer: Lessons from British Missile Development," *The Nonproliferation Review* (Fall 1998), 57.

¹³ Kathleen Burk, in *Pacts and alliances in history: diplomatic strategy and the politics of coalitions*, edited by Melissa Yeager and Charles Carter (USA: I. B. Taurus, 2012), 125.

¹⁴ S. J. Ball, "Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act, 1946-1958," *The Historical Journal* 38, no. 2 (Jun., 1995), The US Air Force ignored

allowed Thor nuclear missiles to be based in the United Kingdom.¹⁵ This basing was crucial if the Thor missile was ever to serve as an operational system and not simply as a developmental step before ICBMs. With no other locations in Europe, the Thor's intermediate range limited its utility. Finally, the United States agreed in 1958 to supply the United Kingdom with a number of atomic weapons.¹⁶ This coincided with the official repeal of the McMahon Act that year, which Macmillan wrote about as "the great prize!"¹⁷ The United States and the United Kingdom were now set to enter into the period of nuclear cooperation which lasts to this day.

With the repeal of the McMahon act, the United States was now able to legally share nuclear weapons ('nuclear technology') with the United Kingdom as well as further plan and develop weapons and strategies. To codify this relationship, the two countries signed the Mutual Defense Agreement which provided for how research and cooperation would be undertaken.¹⁸ The United Kingdom had detonated its first hydrogen weapon in 1957 to the "surprise"¹⁹ of the United States, and the United States now agreed to provide the United Kingdom with a "significant part"²⁰ of the stockpile of weapons it intended to build. More importantly for the future of nuclear capabilities, after determining the

orders by the Atomic Energy Commission not to do so. The Royal Air Force, however, did not secure funding to implement the modifications until 1957.

¹⁵ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 35.

¹⁶ Interestingly, the timing of this agreement in relation to the repeal of the McMahon Act is uncertain. The agreement may have been signed beforehand, in direct opposition to the spirit and letter of the Act.

¹⁷ Harold Macmillan, *At The End of the Day, 1961-1963* (London: Macmillan, 1973) in John Dumbrell, *A Special Relationship: Anglo-American Relations in the Cold War and After* (New York: St. Martin's Press, 2001), 48.

¹⁸ "Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Co-operation of the Uses of Atomic Energy for Mutual Defence Purposes," August 4, 1958, *Treaty Series* 41 (1958).

¹⁹ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 34.

²⁰ S. J. Ball, "Military Nuclear Relations," 453.

infeasibility of the Blue Streak missile, for which the United States had provided help under the Sandys-Wilson agreement, the United Kingdom joined the US Skybolt Program.

The Skybolt Program would lead to the last major public disagreement between the two countries about nuclear weapons. The program aimed to produce an air-launched nuclear ballistic missile. This had been the goal of the Blue Streak Program and both were motivated by the realization that the increase in air-defense sophistication meant that bombers would soon become obsolete. Either system, if workable, would solve this problem by allowing the launch of nuclear weapons thousands of miles away from their targets, thereby letting bombers avoid air-defense measures. However, while the United States invested in the Skybolt Program as one of several nuclear weapons systems it was designing, along with the Polaris submarine-launched ballistic missile (SLBM) and Minuteman intercontinental ballistic missile (ICBM), the United Kingdom opted to only pursue the Skybolt missile. This choice is peculiar because Skybolt would have left the United Kingdom vulnerable to a first-strike by the Soviet Union, just as its bombers were. This vulnerability was due to the rapid development in missile technology which had permitted the creation of ICBMs and SLBMs.²¹ These missiles could launch and strike their targets before any bomber could scramble to takeoff, thereby making any nuclear deterrent reliant on bombers non-credible. Moreover, the small landmass of the United Kingdom in comparison to the United States or Soviet Union means that it is impractical to build enough bases or silos as to make the possibility of a first strike, where an enemy

²¹ Neither one of these systems had been deployed at the time but both had been designed and versions were being tested. There is no reason that anyone would have doubted their future deployment.

would wipe out all of the retaliatory capacity of its adversary in the opening of a war, a possibility.²² ICBMs therefore remain a poor alternative for the United Kingdom and a land-based option should have been avoided from the beginning. Nonetheless, the United Kingdom emphasized cost-savings and the status-quo by choosing Skybolt, which would extend the useful life of the United Kingdom's bombers. If it had chosen Polaris at that time, the United Kingdom would have committed itself to developing a new class of expensive submarines about which the Royal Navy was "unenthusiastic."²³ In exchange for the opportunity to buy Skybolt once it was developed, the United Kingdom agreed to allow American submarines access to British ports.²⁴ These submarines, unlike their British counterparts, were to carry Polaris missiles.

Development of the Skybolt missile, however, did not go as planned. The missile was so large that it was believed that air-defense measures would pose the same risks to it as to manned bombers. Thomas Gates, the Secretary of Defense under Eisenhower approved the development against the recommendations of a Pentagon report and, once this happened, estimated costs rose considerably, along with estimates for how long it would take to develop the platform. Two years later in 1961, Robert McNamara, the new Secretary of Defense under Kennedy, saved the program after another "panel of experts recommend[ed] cancellation." That fall, McNamara yet again preserved the program for an additional year, but imposed a cap on the program's spending which effectively

²² Jon Wolfsthal, "The political and military vulnerability of America's land-based nuclear missiles," *Bulletin of the Atomic Scientists* (2017), <http://www.tandfonline.com/doi/full/10.1080/00963402.2017.1314996>.

²³ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 40.

²⁴ "Letters from Prime Minister Macmillan to President Eisenhower" (June 15 and 24, 1960), US State Department Office of the Historian, accessed February 28, 2017, <https://history.state.gov/historicaldocuments/frus1958-60v07p2/d377>.

guaranteed that it would be cancelled.²⁵ At no point was the United Kingdom explicitly informed that the program was in trouble, not even when the British Minister of Defense visited McNamara after the latter had already decided to cancel the project. Instead, the British learned about American plans to cancel Skybolt from US news sources after the information leaked four days before McNamara was supposed to visit the United Kingdom in December of 1962. The British government was “shock[ed]” when McNamara arrived in London and confirmed that the program was dead.²⁶

The Skybolt ‘crisis,’ as it came to be called, resulted from a lack of communication between the two countries and prideful men who refused to talk about what each nation wanted. The British government could have easily pivoted towards Polaris if the United States had offered it, especially if they had done so privately and before it was announced that Skybolt would be cancelled. Instead, McNamara refused to offer Polaris either in writing or even explicitly in person when he met with his counterpart Peter Thorneycroft in December, 1962, and Thorneycroft was too prideful to ask for it outright, as this would be “to plead on my knees with the Americans.”²⁷ McNamara at that time only offered Polaris as part of a multilateral nuclear force (MNF) within NATO, while Thorneycroft and the British government insisted on gaining an independent nuclear deterrent before considering joining an MNF. With neither willing to state the obvious, the meeting ended and the ‘crisis’ would drag on another two weeks until Macmillan’s previously scheduled meeting with Kennedy in Nassau. During these

²⁵ Donette Murray, *Kennedy, Macmillan, and Nuclear Weapons*, 46-49.

²⁶ Richard Neudstadt, *Report to JFK: The Skybolt Crisis in Perspective* (Ithaca: Cornell University Press, 1999), 69-72.

²⁷ *Ibid.*, 70.

two weeks, the British press attacked the British government for the fact that Britain now found itself with no assured future nuclear weapons program.²⁸

The Polaris Sales Agreement, which came of the meetings between Macmillan and Kennedy in Nassau, Bahamas between December 18 and 21, would put the matter to rest.²⁹ Although Kennedy entered the meetings willing to pay for half of the remaining developmental costs of Skybolt, Macmillan had now been persuaded that Polaris was in fact the better option. The two leaders were able to swiftly work out an agreement on providing Polaris to the United Kingdom with only a minor mention of an MNF at some time in the future. In doing so, the future of the ‘special relationship’ was guaranteed. Both leaders flew away content and the deal today is considered to be “almost the deal of the century”³⁰ for the United Kingdom, yet at the time it was greeted by the British press and the opposition with derision.³¹ In their view, the government had given in to the United States’ cancellation of Skybolt and must therefore have accepted a second-best option, since the United Kingdom had not previously been interested in Polaris. What should instead be realized is that the United Kingdom was given the most advanced American technology for almost no cost.³² Additionally, since Polaris had already been developed, the United Kingdom did not need to worry about the United States cancelling the program or cutting budgets. The first British submarine carrying Polaris missiles was

²⁸ Richard Neudstadt, *Report to JFK*, 69.

²⁹ United States, *Polaris Sales Agreement*, April 6, 1963, <http://www.nuclearinfo.org/sites/default/files/Polaris%20Sales%20Agreement%201963.pdf>.

³⁰ John Dickie, *Special No More: Anglo-American Relations: Rhetoric and Reality* (London: Weidenfeld & Nicolson, 1994) in John Dumbrell, *A Special Relationship*, 136.

³¹ Richard Neudstadt, *Report to JFK*, 98.

³² See Article XI of the Agreement for a full accounting of the costs, notably, 105% of the cost to purchase the missiles (the extra 5% going towards American R&D costs) and shipping and handling.

deployed in 1968 and in addition to its American missiles, the design of the nuclear reactor on the submarine was directly related to American reactors.

Between the signing of the Nassau Agreement and 1982, relations concerning nuclear cooperation continued to deepen with no similar 'crises' nor periods where one country or the other drew back. The United States brought up its proposal for a multilateral nuclear force again during the Johnson administration, however, the lack of interest by the United Kingdom, along with the rest of Europe, led to its demise. The implementation of the Polaris system by the United Kingdom involved a significant amount of collaboration with the United States, as the former had to design and build nuclear warheads small enough to fit on Polaris missiles for the first time and had little experience with nuclear submarine propulsion systems. Additionally, the United Kingdom started to offer greater benefits to the United States as circumstances changed. With France's withdrawal from NATO, the United States moved Army troops from France to Britain and increased its use of UK naval facilities as the size of its nuclear submarine fleet grew. Though the United States withdrew its bombers as they became obsolete, it deployed numerous F-111 fighters, which could drop nuclear bombs. The United States also deployed intermediate-range cruise missiles.^{33,34} Finally, in 1979, the United Kingdom began looking to replace Polaris. Initial talks were positive and even after both countries' governing parties switched, no problems presented themselves. After the United States decided to switch from the Trident C4 to the D5, it offered the more

³³ The cruise missiles did not stay in Britain for long. Deployed in 1983, they were removed in 1987 under the terms of the Intermediate Nuclear Forces Treaty.

³⁴ John Dumbrell, *A Special Relationship*, 129-130.

advanced missile to the United Kingdom with similar provisions as those laid out in the original Polaris Sales Agreement. In return, the United Kingdom agreed to fund an air-defense system at US air bases in Britain and allowed an expansion of the US base at Diego Garcia, an English island in the Indian Ocean.³⁵

Since the Trident Sales Agreement, relations have stayed at the same level of involvement. The United States withdrew its submarines from Scotland in 1992 due to the drawdown after the Cold War but research ties are as close as before.³⁶ Moreover, the two countries have worked together on the Trident missiles both deploy. The United Kingdom is helping to fund the Trident Life Extension Program and has contributed the majority of funds to the Common Missile Compartment design that both countries will use in their next generation of nuclear submarines.^{37;38} With routine passage of the Mutual Defense Agreement in the United States Congress, the relationship looks set to continue for the indefinite future. To understand this continued relationship in the post-Cold War era, it is necessary to look at the benefits that each one receives individually.

³⁵ In her memoirs, Margaret Thatcher argues that the expansion of the base at Diego Garcia was unrelated though it was agreed to at the same time. See Margaret Thatcher, *The Downing Street Years* (USA: HarperCollins, 1993), 246.

³⁶ Craig Whitney, "U.S. to Close Nuclear Sub Base in Scotland in '92," *New York Times*, February 6, 1991, <http://www.nytimes.com/1991/02/06/nyregion/us-to-close-nuclear-sub-base-in-scotland-in-92.html>.

³⁷ Strategic Systems Programs Public Affairs, "Back to the Future with Trident Life Extension," *Undersea Warfare* (Spring 2012), 11, http://www.ssp.navy.mil/documents/trident_life_extension.pdf.

³⁸ Jon Rosamond, "Next Generation U.K. Boomers Benefit from U.S. Relationship," United States Naval Institute, last modified December 17, 2014, <https://news.usni.org/2014/12/17/next-generation-u-k-boomers-benefit-u-s-relationship>.

Chapter 2

The Deal of the Century: A View from the United Kingdom

As noted, John Dickie described the initial Polaris Sales Agreement as “almost the deal of the century”¹ and its successor, the Trident Sales Agreement, has been no less valuable for the United Kingdom. The Trident Sales Agreement (TSA) and the Mutual Defense Agreement (MDA) provide enormous monetary value to the United Kingdom today. Previously, they have saved the United Kingdom billions of dollars in development costs, with the Trident II missile alone costing more than \$30 billion to develop.² Beyond this first incentive, the Agreements ensure Britain’s place at the table in arms negotiations and its stature as a world and nuclear power. This, in turn, has effects on Britain’s place in NATO. On the opposite side, it can be argued that the Agreements have led to higher costs, called into question the notion that Britain’s deterrent is truly independent, and raised doubts about the Non-Proliferation Treaty.

¹ John Dickie, *Special No More: Anglo-American Relations: Rhetoric and Reality* (London: Weidenfeld & Nicolson, 1994) in John Dumbrell, *A Special Relationship*, 136.

² Stephen Schwartz, *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons Since 1940* (USA: Brookings Institution Press, 1998), 150.

One of the problems in assessing the benefits that the Mutual Defense Agreement and Trident Sales Agreement provide to the United Kingdom is not knowing what the UK would have done without them. For example, the Trident missile, unlike some systems which might have been adopted, provides the United Kingdom with an assured second strike capability. This is because of its nature as a long range submarine launched ballistic missile (SLBM). Whether or not the United Kingdom would have ever developed its own SLBMs and associated submarines, let alone in the 1950s, is impossible to know. The extent of the benefits that the Agreements provide is, therefore, highly inexact. Knowing this, it is possible to argue that without any American help, the United Kingdom would have been able to develop a missile suitable to its needs on its own and at a lower cost. Yet that assumption ignores the reality of the United Kingdom in the 1950s and that anything can be compared to infinite comparative hypotheticals. Moreover, the United Kingdom chose to pursue joint nuclear weapon projects with the United States and, as a rational actor, we can assume that the United Kingdom thought that this was in its best interest. As explained in the historical overview of the agreements, cost played a major role in this decision. Put simply, the United Kingdom could not afford to keep up with the Soviet Union on its own, threatening the credibility of its nuclear deterrent. Sunk costs provide a compelling reason for why the United Kingdom has chosen to stick with similar arrangements ever since.

Unlike the United States, where no political party has advocated the abolition of its nuclear deterrent, Britain's Labour Party has done so within the last decade. Coupled with slow economic growth and budget deficits, this led to an unusually public process of considering alternatives to its current nuclear deterrent prior to final authorization in 2014

for a like-for-like replacement of its submarines. Of particular interest is the government's *Trident Alternatives Review* study which examined what the United Kingdom's nuclear deterrent could look like besides four submarines providing continuous at sea deterrence.³ While the study's conclusion that a similar or identical replacement (i.e., the current decision) would be the least expensive option is debatable,⁴ the cost analysis of different parts of the system show that access to the Trident missile and common work towards a new nuclear warhead provide a savings of at least £5 billion.⁵ This ignores the savings that the MDA provides every year in terms of research cooperation, which have never been tallied. Additionally, under the MDA, the United States provided the United Kingdom with a submarine nuclear reactor in 1958 which served as the United Kingdom's design template and starting point for further British submarine nuclear reactor development.⁶ This has been followed by the exchange of information concerning nuclear reactors and the United Kingdom's forthcoming nuclear submarine reactor is based off of an American design.⁷

³ "Trident Alternatives Review," *Her Majesty's Government* (July 2013), accessed March 5, 2017, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/212745/20130716_Trident_Alternatives_Study.pdf. A Continuous at Sea Deterrence posture means that at any point in time at least one submarine is out on patrol within range of its missiles' targets. To maintain such a posture, a country requires a minimum of four submarines to account for refitting, training, accidents, and repairs.

⁴ All programs were premised on the need to build two new submarines in any case since the alternatives would take longer to develop and field. This is highly questionable.

⁵ "Trident Alternatives Review," 7-8. All cost estimates were at the 50% confidence level. The history of large military procurement programs shows that it is impossible to estimate exactly how much a new system would cost. Importantly, the cost of risk in a like-for-like replacement is much lower.

⁶ U.S. Department of State, "Agreement between Government of the United Kingdom of Great Britain and Northern Ireland and Government of United States of America for Cooperation on Uses of Atomic Energy for Mutual Defense Purposes," Washington DC, 3 July 1958, *United States Treaties and Other International Agreements*, 9, 1029.

⁷ Severin Carrell, "Navy to axe 'Fukushima type' nuclear reactors from submarines," *The Guardian*, March 23, 2011, <https://www.theguardian.com/uk/2011/mar/23/navy-submarines-nuclear-reactors>.

If we consider that the MDA and TSA have assured the United Kingdom's continued status as a nuclear weapon state, they have also guaranteed the United Kingdom a place in arms negotiations and recognition as a world power. As both a permanent member of the United Nations Security Council and one of nine nuclear powers, Britain has the ability to play an outsized role in any new arms control treaty. Additionally, as the United States threatens to draw away from NATO, the deterrent capability that Britain and France deploy is magnified. Britain's nuclear forces are committed to NATO and although NATO strategy documents treat British and French nuclear forces as second class to the United States',⁸ this is an unfair characterization. Together, the countries possess twice as many as China, whose deterrent capability is not questioned. The MDA and TSA thus provide a benefit to the United Kingdom independent of cost savings.

Given the United Kingdom's nuclear ties to the United States, it might seem logical that similar ties would exist between the United Kingdom and France as both countries shared the same common enemy and security concerns about the USSR. Additionally, while in 1962 the United Kingdom was further along in the development of a nuclear force, both countries had a significant way to go. Cooperation would likely have brought results sooner and at lower costs. Today, cooperation would allow costs to be shared and more research to be conducted. This, however, has not been the case.

⁸ NATO's 2010 Strategic Concept and 2012 Deterrence and Defence Posture Review state that: "The supreme guarantee of the security of the Allies is provided by the strategic nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies." See "Deterrence and Defence Posture Review," *North Atlantic Treaty Organization*, May 21, 2012, http://www.nato.int/cps/en/natohq/official_texts_87597.htm.

Following the Polaris Sales Agreement (PSA), President Kennedy reached out to President de Gaulle. After informing him of the pending agreement and nuclear cooperation between the United States and the United Kingdom, Kennedy told de Gaulle that “ I want you to know that I would consider a similar agreement with you, should you so desire.”⁹ This shows that the United States was willing to consider a similar relationship to what it already had with the United Kingdom. The United Kingdom was also interested in establishing a nuclear relationship with France and high level talks had been held concerning the development of an Anglo-French missile prior to the PSA. President de Gaulle, however, backed away from this interest and rejected President Kennedy’s offer for reasons of cost (France had no submarines for the missiles), practicality (France did not have a suitable warhead for the missiles), and politics, after the PSA was announced. Politics, in this decision, were especially important. At the same time as de Gaulle was considering the Polaris offer, a final decision needed to be made concerning the United Kingdom’s application to the European Economic Community (EEC). In rejecting the application, de Gaulle cited the close ties between the United States and the United Kingdom and American influence over Britain as reasons for why he would veto Britain’s application to join the EEC. There is no guarantee that de Gaulle would have allowed Britain to join the EEC if the PSA had not been signed but its signature and the exceptionally close ties between the United States and the United

⁹ “Telegram From the Delegation to the Heads of Government Meeting to the Embassy in France” (December 20, 1962), US State Department Office of the Historian, <https://history.state.gov/historicaldocuments/frus1961-63v13/d407>.

Kingdom that it represented were a stumbling block to one of Britain's highest priorities.¹⁰

With the question of Britain's accession to the EEC long past and France having developed its nuclear technology to the point that it could be more of a full partner with the United Kingdom in joint research, it is now the United Kingdom which has trouble agreeing. This is due to the limitations that the MDA has placed on the United Kingdom. The MDA does not allow the United Kingdom to share anything it learns from the joint research provision with other countries. Due to the scope of US-UK nuclear research efforts over the past 60 years, this greatly curtails any research projects the United Kingdom might wish to undertake with other countries and forces Britain to consult with the United States prior to undertaking these research projects.¹¹ In 1962, for example, the United States was willing to overlook this provision as the United Kingdom offered to help France develop a warhead suitable for Polaris, which the United Kingdom had learned as a direct result of the MDA. Today, any project with a third country is decided on a case by case basis and no precedent can be seen from the United States' actions in 1962. Though this provision of the MDA has yet to officially stop Britain from working with France or other countries, it has slowed down efforts and imposed costs which would not otherwise exist. This is highlighted by the United Kingdom and France's recent agreement to start a joint research project.¹² The facility that is being built for the

¹⁰ Constantine Pagedas, "Denouement: The December Meeting of 1962 and the General's Veto," in *Anglo-American Strategic Relations and the French Problem, 1960-1963: A Troubled Partnership* (London: Frank Cass, 2000), 225-265.

¹¹ Matthew Harries, "Britain and France as Nuclear Partners," *Survival*, 54:1 (2012), 14.

¹² Robert Golan-Vilella, "UK, France Sign Nuclear Collaboration Treaty," *Arms Control Association*, December 5, 2010, https://www.armscontrol.org/act/2010_12/UK_France.

research is over-engineered to create “physically separate areas within the facility manned solely by national personnel (ie, only Brits in the UK area) and permits each side to undertake nuclear weapons work “without scrutiny” of the other.”¹³ In keeping the facility divided, the United Kingdom helps to ensure that it will not abrogate the MDA’s confidentiality clause.

A more important drawback to the agreements has to do with the Trident missile system itself. By choosing to field the Trident missile, the United Kingdom is locked into a highly effective and reputable system, yet one which is also extremely expensive to build and maintain. No aircraft or silo costs £10 billion to build, yet that is the cost of one submarine capable of carrying Trident missiles. In fact, due to the United Kingdom’s much greater proximity to Russia, the missile’s original target, as compared to the United States, for whom the missile’s capabilities were designed, the missile is significantly over-engineered for Britain’s needs. Britain does not need either the range or warhead capacity that the Trident II D5 enjoys. Both of these factors lead the missile to be larger and heavier than otherwise necessary, in turn necessitating larger, more expensive, submarines. This over-engineering is exemplified by the fact that the United Kingdom also operates the Trident missile in a sub-strategic role with only a single warhead instead of the maximum fourteen that it can carry and sometimes fills some of the missile tubes on board with concrete ballast blocks instead of missiles.¹⁴ Thus, while the United Kingdom has benefited from having access to a proven missile system at a very low cost,

¹³ Jeffrey Lewis, “Par Teutates,” *Arms Control Wonk*, November 14, 2010, <http://www.armscontrolwonk.com/archive/203114/par-teutates/>.

¹⁴ Michael Bolton, “Dive Bombers,” *The Sunday Times*, January 20, 2008, http://www.thesundaytimes.co.uk/sto/news/uk_news/article78684.ece.

this missile system has forced the United Kingdom to buy more expensive submarines than it would otherwise require. Due to the fact that they are larger, these submarines are also inherently less stealthy. Although the *Trident Alternatives Review* looked at what other systems the United Kingdom could use, it concluded that all would be more expensive to develop due to the need to both develop a new delivery system and still build two submarines to maintain a constant deterrent. What it did not consider was smaller, less expensive submarine options which could still make use of Trident.

Finally, the benefit that the Mutual Defense Agreement provides must be set against how it impacts perceptions of the Nuclear Non-Proliferation Treaty (NPT). Proposed by the United States and the United Kingdom, the treaty set out to stop the spread of nuclear weapons to new States. Article I outlawed the transfer of nuclear weapons and explosive devices “directly, or indirectly” to any State, and under Article VI, the current nuclear States agreed to “pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament.”¹⁵ The legality of the MDA is thus called into question dependent on the extent of the information shared between the United Kingdom and United States. At the minimum, the MDA would seem to contravene the spirit of the NPT as it helps the United Kingdom maintain its deterrent as well as develop a new one. Both countries reject this argument outright and do not mention the fact that the MDA predates the NPT to argue for it, as this would entertain admitting the premise. This denial, however, is made suspect by their actions and words. The text of President Obama’s message to the

¹⁵ United Nations, “Treaty on the Non-Proliferation of Nuclear Weapons,” March 5, 1970, <https://www.un.org/disarmament/wmd/nuclear/npt/text>.

US Congress, urging the renewal of the MDA, stated that it permitted “the transfer between the United States and the United Kingdom of classified information concerning atomic weapons; nuclear technology and controlled nuclear information.”¹⁶ Moreover, while the United States may not provide physical nuclear weapons, the MDA allows the two “nuclear warhead communities to collaborate on all aspects of nuclear deterrence including nuclear warhead design and manufacture,” including the “nuclear explosive package design and certification.”¹⁷ Despite opposition from some scholars who do not view the argument that the MDA contravenes either the spirit or letter of the NPT as “persuasive,”¹⁸ others have urged the two countries to explicitly state how the MDA does not contravene the NPT.¹⁹ At the very least, the presence of the MDA provides a potential shield for any country which wishes to work with another on nuclear weapons projects. Finally, this calls into question both country’s commitment to the NPT, which is not conducive to arguing that other signatories should not abandon it. If either country were serious about fully implementing the treaty, the MDA might need to be suspended or terminated.²⁰

¹⁶ Barack Obama, “Message to the Congress -- Amendment Between the United States and the United Kingdom of Great Britain and Northern Ireland,” July 24, 2014, <https://obamawhitehouse.archives.gov/the-press-office/2014/07/24/message-congress-amendment-between-united-states-and-united-kingdom-grea>.

¹⁷ Richard Norton-Taylor, “UK to step up collaboration with US over nuclear warheads,” *The Guardian*, June 12, 2014, <https://www.theguardian.com/world/2014/jun/12/uk-us-mutual-defence-agreement-exclusive>.

¹⁸ Matthew Harries, “Britain and France as Nuclear Partners,” 15.

¹⁹ James McKeon, “US-UK Mutual Defense Agreement: A Violation of International Law?” *British American Security Information Council*, October 27, 2014, <http://www.basicint.org/blogs/2014/10/us-uk-mutual-defense-agreement-violation-international-law>.

²⁰ Since the Trident missile could carry a conventional warhead, it does not fall under the NPT. It could, however, run afoul of the Missile Technology Control Regime or the Hague Code of Conduct Against Ballistic Missile Proliferation.

Chapter 3

Analyzing the United States' Position

As the Trump administration makes a point of advertising its increase of the US Defense budget, the fact remains that, with or without the increase, US Defense spending is lower now than it was at the end of the Cold War. This extends to the United States' nuclear forces which have seen not only large cuts in the number of weapons and warheads deployed but also their withdrawal from many countries where the United States had previously deployed them. President Bush oversaw much of this when he withdrew US nuclear weapons from all foreign countries apart from six¹ NATO countries in 1991.² President Trump has also overseen part of this drawdown, with the removal of over 10% of America's ICBMs since he took office.³ These changes, however, have not reached the United States' nuclear agreements with the United Kingdom. The Mutual

¹ Of the six NATO countries (Belgium, Germany, Greece, Italy, the Netherlands, and Turkey), all retain weapons apart from Greece.

² "The Presidential Nuclear Initiatives (PNIs) on Tactical Nuclear Weapons at a Glance," Arms Control Association, last modified August 2012, <https://www.armscontrol.org/factsheets/pniglance>.

³ This took place due to President Obama's signing of the New START deal. Robert Burns, "While Trump talks tough, US quietly cutting nuclear force," *Associated Press*, March 19, 2017, <http://bigstory.ap.org/article/348e73c914664510b665986b680bbc76/while-trump-talks-tough-us-quietly-cutting-nuclear-force>.

Defense Agreement, renewed in 2014, is slated to stay in effect through 2024 when both countries will decide whether or not to renew it for another ten years. Considering the fact that its renewal in 2014 was not even mentioned in the US press, this appears to already be likely. Similarly, with the United States' decision to extend the life of the Trident missile into the 2040s, and the United Kingdom's agreement to this, the relationship appears set to continue. The United States is rarely thought of as a generous country, more concerned with others than its own agenda. It is therefore interesting to examine why the United States maintains the status quo in its nuclear relationship with the United Kingdom. Stated more bluntly, what do the Mutual Defense Agreement (MDA) and Trident Sale Agreement (TSA) provide the United States? Important to this discussion is what the agreements cost the United States and what our interest is in maintaining them.

The Benefits the United States Receives:

The MDA and TSA each articulate one benefit that they provide the United States. In the case of the MDA, this is collaboration on research and technical matters related to nuclear weapons. Originally, this cooperation extended so far as to allow the United Kingdom to test nuclear weapons at Los Alamos, with each country having access to the data the tests provided. Since these tests were outlawed, each country has continued to work with the other as they research highly confidential technologies and the science behind nuclear weapons.⁴ The sharing of information is done under the umbrella of joint working groups (JOWOGs), focused on specific areas of engineering,

⁴ Although the United States has not ratified the Comprehensive Nuclear-Test-Ban Treaty, President Clinton signed it in 1996 and the United States has not tested weapons since 1992.

material science, and physics. Even though it is impossible to fully quantify the fruit of this joint research due to its confidential and siloed nature, the frequency of contact is high with “1,500 visits by staff of the UK Atomic Weapons Establishment [...] made to equivalent US nuclear facilities between 2007 and 2009.”⁵ Moreover, the MDA has allowed the United States to conduct research it would otherwise not be able to do, as Congress prohibited some testing with plutonium that remains possible in the United Kingdom.⁶ While there is no consensus as to the value of the additional research that the United Kingdom’s scientists and facilities produce, at the very least they provide a separate group to peer review work.⁷ Additionally, the fact that these joint working groups all take place at the technical level and do not involve political oversight or authorization may be one reason why the MDA receives so little attention and remains uncontroversial.⁸

Even more clearly than the Mutual Defense Agreement, the Trident Sales Agreement provides a clear benefit to the United States in terms of cost savings. Adapted from the Polaris Sales Agreement, the TSA states that the United Kingdom must contribute five percent of the research and development costs of the Trident missile. Additionally, the use of a common missile has led the navies of both countries to build a common missile compartment (CMC) for their next generation submarines and the

⁵ Hugh Chalmers and Malcom Chalmers, “The Future of the UK’s Co-operative Nuclear Relationships,” *Royal United Services Institute Occasional Paper* (June 2013), https://rusi.org/sites/default/files/201306_op_future_of_the_uks_cooperative_nuclear_relationships.pdf.

This is the only figure I have come across for the number of visits by either party and it is impossible to know whether this reflects a high, low, or average number of reciprocal visits.

⁶ See footnote 54, Hugh Chalmers and Malcom Chalmers, “The Future of the UK’s Co-operative Nuclear Relationships,” 20.

⁷ Linton Brooks, “The Future of the 1958 Mutual Defense Agreement,” in *U.S.-UK Nuclear Cooperation After 50 Years*, eds. Jenifer Mackby and Paul Cornish (Washington, D.C.: CSIS Press, 2008), 155.

⁸ *Ibid.*, 154.

United Kingdom is also contributing to the end of life extension program that the Trident is undergoing.^{9,10} The contribution towards the development costs of Trident alone were over half a billion dollars,¹¹ and the United Kingdom has spent more than \$300 million to help develop the CMC.¹² Moreover, on top of what the United Kingdom has paid the United States to develop these technologies, it has had to purchase the actual missiles and missile control systems from United States manufacturers, providing an additional benefit to American companies.

Beyond these cost savings, the Trident Sales Agreement was contingent on the United Kingdom agreeing to commit its nuclear weapons to NATO.¹³ This strengthens NATO's nuclear deterrent and allows for the creation of an integrated nuclear response plan. In the first case, NATO's nuclear deterrent is strengthened due to the increased credibility it has when members publicly state that they will use their nuclear weapons in defense of the alliance. By keeping silent, a belligerent country might not believe that any member of the alliance would respond with nuclear weapons if a scenario in which this was a possibility were to arise, weakening the weapons' deterrent effect. The integrated nuclear response plan, on the other hand, means that the United States and the United

⁹ Jon Rosamond, "Next Generation U.K. Boomers Benefit from U.S. Relationship," United States Naval Institute, last modified December 17, 2014, accessed February 19, 2017, <https://news.usni.org/2014/12/17/next-generation-u-k-boomers-benefit-u-s-relationship>.

¹⁰ "Trident Costs Rocket by 600%," *The Herald*, last modified November 23, 2013, http://www.heraldscotland.com/news/13133165.Trident_costs_rocket_by_over_600/.

¹¹ David Fairhall, "£5 billion Trident deal is agreed," *The Guardian*, last modified July 16, 1980 <https://www.theguardian.com/century/1980-1989/Story/0,,108170,00.html>.

¹² Government Accountability Office, *Defense Acquisitions: Assessments of Selected Weapon Programs* GAO-11-233SP (March 2011), 147.

¹³ John F. Kennedy, "Telegram From the Delegation to the Heads of Government Meeting to the Embassy in France," December 20, 1962, US State Department Office of the Historian, <https://history.state.gov/historicaldocuments/frus1961-63v13/d407>; Ronald Reagan, "Letter to Prime Minister Margaret Thatcher of the United Kingdom on the Sale of the Trident II Missile System," March 11, 1982, <http://www.presidency.ucsb.edu/ws/?pid=42255>.

Kingdom share their targeting information with one another, leading to less overlap and fewer unnecessary weapons while also ensuring that all targets are hit. This would not be possible if Britain kept its targeting decisions to itself. While the full benefits of this cooperation have never been seen (since no nuclear wars have been fought) it allows the United States to better plan its response in the event of a nuclear war and to deploy missiles and submarines accordingly.

In addition to the benefits laid out in the specific agreements, the United Kingdom has further incentivized the United States. Of perhaps greatest strategic importance has been base access. With the signing of the Skybolt Agreement in 1960, the United States was granted access to the British submarine base Holy Loch in Scotland.¹⁴ This was the United States' primary European submarine base during the Cold War, and was extremely useful to intelligence gathering and nuclear deterrent efforts.¹⁵ However, following the introduction of nuclear submarines with longer ranges, and the drawdown following the Cold War, the United States withdrew from Scotland in 1992 (though access is still available in case of emergencies).¹⁶ The other important base associated with the MDA and TSA is Diego Garcia, located in the central Indian Ocean, whose current lease runs through 2036.

Originally included as part of the Polaris Sales Agreement, Diego Garcia has become a critical base for the United States, partly due to British actions. As the United

¹⁴ Dwight Eisenhower, "Memorandum re: Skybolt and Polaris" (March 29, 1960), <http://historyinpieces.com/documents/documents/skybolt-agreement/>.

¹⁵ D. G. Mackay, "Scotland the Brave? US Strategic Policy in Scotland 1953-1974" (MPhil thesis, University of Glasgow, 2008), <http://theses.gla.ac.uk/347/1/2008mackayMPhil.pdf>, 51-83.

¹⁶ Craig Whitney, "U.S. to Close Nuclear Sub Base in Scotland in '92."

Kingdom withdrew its military presence from the Indian Ocean during the 1960s, the United States looked to maintain access to the region. After settling on Diego Garcia as the optimal location due to its natural harbor and proximity to maritime trade routes and strategic locations, including the straits of Hormuz and Malacca, the United States asked the United Kingdom for permission to establish a small communications facility on the island. This was eventually agreed to in exchange for a reduction in the price for Polaris missiles.¹⁷ Though Britain initially agreed to a small US base, it gave permission for this to expand dramatically in 1982.¹⁸ Diego Garcia is, today, one of the United States' most important overseas military bases and a crucial airbase for aircraft attacking targets in Iraq and Afghanistan, along with surveillance of the Indian Ocean, the Middle East, and Eastern Africa.¹⁹ Diego Garcia also provides an important naval facility for the United States, used for resupplying submarines and surface ships in the Indian Ocean and is home to one of the US Navy's two submarine tenders. Finally, the base hosts one-third of the entire US afloat prepositioning force, "enabling both an Army and a Marine Corps brigade to mobilize within 24 hours, position assets anywhere within the theater in a week, and operate without additional support for up to 30 days," and is a major telecommunications station for the military.²⁰ Diego Garcia is thus a critically important strategic asset that the United States receives from the United Kingdom. Irreplaceable in

¹⁷ David Vine, *Island of Shame* (USA: Princeton University Press, 2009), 87-88.

¹⁸ Though this expansion came at the same time as the Trident Sales Agreement, Margaret Thatcher denies that one had anything to do with the other, Margaret Thatcher, *The Downing Street Years* (USA: HarperCollins Publishers, 1993), 246.

¹⁹ "Diego Garcia Units," *Global Security*, accessed February 24, 2017, <http://www.globalsecurity.org/military/facility/diego-garcia-units.htm>.

²⁰ Andrew Erickson, Ladwig Walter III, and Justin Mikolay, "Diego Garcia and the United States' Emerging Indian Ocean Strategy," *Asian Security* 6:3 (2010), doi: 10.1080/14799855.2010.507408, 221-225.

terms of location and security, its loss would also include a significant amount of US infrastructure investment in the base. When comparing the value of the benefits and incentives that the United States receives from the United Kingdom as part of the MDA and TSA, Diego Garcia stands far above the others. Whereas the United States could devote more money to nuclear research and make up the cost savings, there is no alternative to Diego Garcia as a strategic asset which does not come without myriad drawbacks.

The Cost to the United States:

The Mutual Defense Agreement and Trident Sales Agreement have very few, if any, direct costs to the United States apart, perhaps, from a few extra plane tickets for scientists to exchange information. Instead, the most obvious negative for the United States is the opportunity cost that Britain faces as it maintains a nuclear deterrent instead of investing that money into other branches within its armed forces. In fact, one of President Reagan's original reasons for agreeing to the Trident Sales Agreement was that "the economies realized through cooperation between our two governments will be used to reinforce the United Kingdom's efforts to upgrade its conventional forces. Such nuclear and conventional force improvements are of the highest priority for NATO's security."²¹

²¹ Ronald Reagan, "Letter to Prime Minister Margaret Thatcher of the United Kingdom on the Sale of the Trident II Missile System," March 11, 1982.

The United Kingdom spends five to six percent of its entire defense budget on maintaining its fleet of four SSBNs and their missiles.²² This compares to less than three and a half percent in the United States' defense budget for its entire nuclear arsenal.²³ More important to this discussion is the estimate that replacing the United Kingdom's SSBNs, which has just begun, will cost up to £40 billion,²⁴ and up to thirty percent of the United Kingdom's projected yearly defense acquisition budget over the next 8 years.²⁵ This comes as defense cuts have forced the United Kingdom to significantly curtail its armed forces. In particular, the Air Force, Navy, and Army are losing between 12.5 and 20% of their total active personnel between 2010 and 2020.²⁶ This has led some scholars to believe that "the UK may face a situation in which it has highly advanced equipment but lacks either the trained forces or the ammunition, maintenance, logistics and other supporting infrastructure to use it effectively."²⁷ Former US Secretary of Defense, Ash Carter, spoke to the issue, saying that "Britain has always had an independent ability to express itself and basically punch above its weight. I'd hate to see that go away because I

²² UK Parliament, "House of Commons Written Answers," 20 December 2012, <https://www.publications.parliament.uk/pa/cm201213/cmhansrd/cm121220/text/121220w0002.htm#12122061000114>.

²³ The US defense budget in 2015 was \$598.5 billion. Between 2010 and 2018, the US will spend on average \$20 billion per year on its nuclear arsenal. See "U.S. Nuclear Weapons Budget: An Overview," Nuclear Threat Initiative, last modified September 27, 2013, <http://www.nti.org/analysis/articles/us-nuclear-weapons-budget-overview/>.

²⁴ "A guide to Trident and the debate about replacement," *BBC*, July 18, 2016, <http://www.bbc.com/news/uk-politics-13442735>.

²⁵ "The Defence Equipment Plan 2016" (January 2017), *Ministry of Defense*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/592765/Defence_Equipment_Plan_2016_final_version.pdf, 18-35.

²⁶ "US defence secretary warns against UK armed forces cuts," *BBC*, June 1, 2015, <http://www.bbc.com/news/uk-32955231>.

²⁷ Robin Niblett, "Britain, Europe and the World: Rethinking the UK's Circles of Influence," *Chatham House*, October 2015, <https://www.chathamhouse.org/sites/files/chathamhouse/20151019BritainEuropeWorldNiblettFinal.pdf>, 10.

think it's a great loss to the world if [the UK...] takes actions which seem to indicate disengagement.”²⁸ These comments came during the debate in Parliament over the question of replacing the United Kingdom’s fleet of SSBNs and followed comments by the Chief of Staff of the US Army, in March 2015, where he raised these concerns and spoke to how US military plans had been affected by the UK’s budget cuts. Unlike prior conflicts, the cuts in the United Kingdom’s military personnel had forced the United States to assume that British forces would no longer be able to operate separately from American forces, but would instead have to operate within American units.²⁹ This has been the result of an eight percent cut of the United Kingdom’s defense budget, beginning in 2010.³⁰ In terms of personnel, this means that the US can no longer count on 10,000 ground troops from the UK, as it provided in Afghanistan, along with air and naval assets. While repurposing the United Kingdom’s nuclear deterrent budget would not cover the entirety of this shortfall, it would make up the majority of it. This has led the Scottish National Party to endorse this position as it seeks further reasons for the United Kingdom to disarm.³¹

Although repurposing the funds currently destined for the United Kingdom’s next generation of SSBNs to the United Kingdom’s conventional military assets has been

²⁸ Ash Carter, interview with *BBC News*, June 1, 2015, <https://www.youtube.com/watch?v=2NrPwJtz9MQ>.

²⁹ Con Coughlin, “US fears that Britain's defence cuts will diminish Army on world stage,” *The Telegraph*, March 1, 2015, <http://www.telegraph.co.uk/news/uknews/defence/11443204/Britain-is-becoming-a-friend-who-cant-be-trusted-says-top-US-general.html>.

³⁰ UK Ministry of Defense, “Defence Budget cut by eight per cent,” October 20, 2010, <https://www.gov.uk/government/news/defence-budget-cut-by-eight-per-cent>.

³¹ Jon Stone, “Trident nuclear weapons system is a 'status symbol' for the British establishment, says Nicola Sturgeon,” *The Independent*, April 29, 2015, <http://www.independent.co.uk/news/uk/politics/trident-nuclear-weapons-system-is-a-status-symbol-for-the-british-establishment-says-nicola-sturgeon-10211674.html>.

propounded by some British officials,³² it is not a position that the United States has officially endorsed.³³ In fact, following the cuts, President Obama approved the extension of the Mutual Defense Agreement for a further 10 years in 2014, using the same language that President Reagan first used in 1984 and which has been used ever since:

In my judgment, the Amendment meets all statutory requirements. The United Kingdom intends to continue to maintain viable nuclear forces into the foreseeable future. Based on our previous close cooperation, and the fact that the United Kingdom continues to commit its nuclear forces to the North Atlantic Treaty Organization, I have concluded it is in the United States national interest to continue to assist the United Kingdom in maintaining a credible nuclear deterrent.

I have approved the Amendment, authorized its execution, and urge that the Congress give it favorable consideration.³⁴

Moreover, the United States' ambassador to the United Kingdom reaffirmed American support for Britain's nuclear deterrent in 2016, weeks before Parliament voted to build new nuclear submarines, and stated that unilateral disarmament would be "a destabilising force and we do not need more destability [sic] in the world right now."³⁵ This continued support for the United Kingdom's nuclear deterrent shows that, no matter what costs it might have for the United States, particularly in terms of a smaller allied military to call

³² "Generals in 'scrap Trident' call," *BBC News*, January 16, 2009,

http://news.bbc.co.uk/2/hi/uk_news/7832365.stm.

³³ US officials have, however, mentioned this tradeoff anonymously. See Steven Erlanger "NATO at a turning point: Recession and austerity put Europe at risk of 'military irrelevance,'" *International Herald Tribune*, April 13, 2013,

<http://ccl.idm.oclc.org/login?url=http://search.proquest.com/docview/1349941720?accountid=10141>.

³⁴ For President Obama's text, see Barak Obama, "Message to the Congress -- Amendment Between the United States and the United Kingdom of Great Britain and Northern Ireland," July 24, 2014,

<https://obamawhitehouse.archives.gov/the-press-office/2014/07/24/message-congress-amendment-between-united-states-and-united-kingdom-grea>; President Reagan's text can be found here:

<https://www.reaganlibrary.archives.gov/archives/speeches/1984/60684g.htm>; President Clinton's here:

<https://www.gpo.gov/fdsys/pkg/WCPD-1994-05-30/pdf/WCPD-1994-05-30-Pg1152-2.pdf>; President

George W. Bush's here: <http://www.acronym.org.uk/old/archive/docs/0406/doc14.htm>.

³⁵ Ben Riley-Smith, "US ambassador warns scrapping nuclear arms unilaterally could 'destabilise' world," *The Telegraph*, January 13, 2016,

<http://www.telegraph.co.uk/news/worldnews/northamerica/12098316/US-ambassador-warns-scrapping-nuclear-arms-unilaterally-could-destabilise-world.html>.

on, the Mutual Defense Agreement and the Trident Sales Agreement provide more than they cost. What exactly enters into this calculation is not, however, publicly released. In his message to Congress, President Obama and his predecessors have simply stated “our previous close cooperation, and the fact that the United Kingdom continues to commit its nuclear forces to the North Atlantic Treaty Organization” as reason enough to maintain the MDA. In keeping its reasoning generic and brief and in refusing to mention any costs, the United States has failed to conclusively establish, one way or another, its interest in the MDA and TSA. Nevertheless, with the United Kingdom’s unflagging interest, the agreements are set to continue.

Chapter 4

Understanding the Relationship in a Complex World

So far, this study has focused almost exclusively on the relationship between two actors: the United States and the United Kingdom. International relations and governmental decisions, however, cannot be properly understood without considering the other actors in play. No decision, in this realm, is made within a vacuum. Instead, every actor is reacting to others and, together, they form networks. As Zeev Maoz defines it “International relations have evolved as a set of interrelated cooperative and conflictual networks. These networks coevolve in constant interaction with each other, and this interaction has important implications for the behavior of nations and for the structure of the international system.”¹ The current relationship between the United States and United Kingdom cannot be properly understood if this is not taken into account. International Relations has also developed theories concerning defensive alliances, looking at what they represent and why countries enter into them.² While these agreements between the

¹ Zeev Maoz, *Networks of Nations: The Evolution, Structure, and Impact of International Networks, 1816–2001* (USA: Cambridge University Press, 2010), 6-7.

² Alliance Theory stretches back to the work of Hans Morgenthau in *Politics Among Nations*. For a literature review, see Kajsa Ji Noe Oest, “The End of Alliance Theory?” Institute for Statskundskab,

United States and United Kingdom are not alliances, we argue that they have the same value as defensive alliances and show an even stronger relationship. When considering all the factors together, we find an interrelated network balancing cooperation and conflict with multiple asymmetric, dyadic relationships is the key feature.

The prior work combining alliances and network theory has focused on alliances for the simple reason of commitment.³ Alliances, defined as agreements between two or more states to come to each other's aid if they are attacked, are viewed as a genuine expression of states' relationships with one another due to the topic (war) and the consequences that a state would face if it abandoned the agreement (loss of credibility, security, allies). Alliances are therefore used as reliable network indicators demonstrating close ties between States. This stands in contrast, for example, to a network which represents membership in international organizations where two states in the network may have very close ties or almost no relationship at all. Where the commitment represented by assuming the risks of reduced security and credibility is used to justify the assumption that alliances involve important network ties, the highly sensitive nature of the work that takes place is why we view nuclear ties, such as those between the US and the UK, as equally important indicators of the relationships between states. In fact, the paucity of such agreements suggests that they are even stronger indicators. Two states may very well be willing to ally with one another and yet not be willing to share nuclear

Copenhagen University (Working Paper, March 2007),
http://polsci.ku.dk/arbejdspapirer/2007/ap_2007_03.pdf.

³ See Skyler Cranmer, Bruce Desmarais, and Justin Kirkland, "Toward a Network Theory of Alliance Formation," *International Interactions: Empirical and Theoretical Research in International Relations*, 38:3 (2012), 295-324, and Camber Warren, "The geometry of security: Modeling interstate alliances as evolving networks," *Journal of Peace Research*, 47:6 (2010), 697-709.

secrets. This is the case, for example, between the United States and both South Korea and Japan.

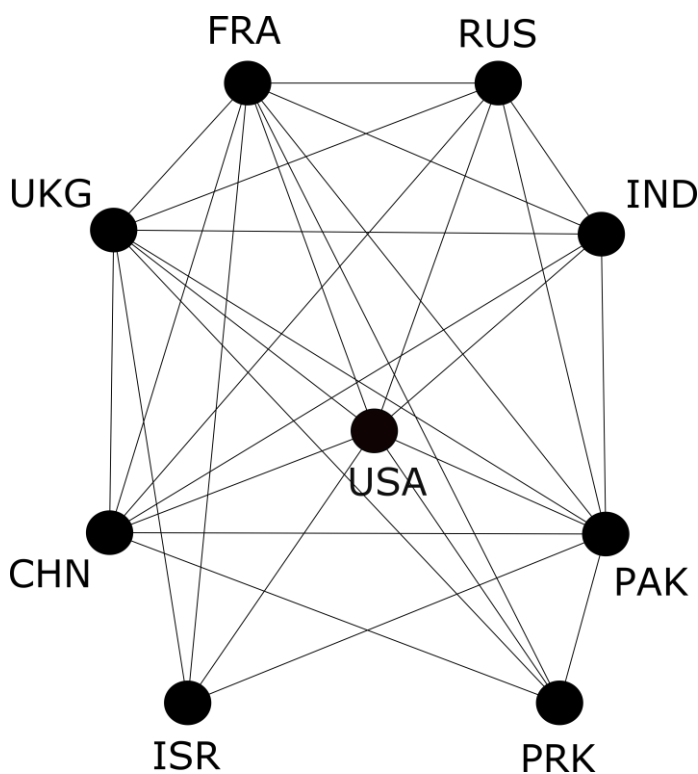
Alliance theory also contributes to our understanding of the agreements themselves. Here, most authors argue that alliances are “principally a method of capability aggregation across states in order to increase their collective security.”⁴ They are, therefore, deterrence tools. Morrow, however, argues that this understanding is incomplete and ignores the concept of ‘autonomy.’ Where security is a state’s “ability to maintain the current resolution of the issues that it wants to preserve,” Morrow defines autonomy as a state’s “ability to pursue the internal and international policies that it wants.” The reason for this difference is that “Merging all national goals into the concept of security blurs the distinction between goals and makes every act an attempt to gain ‘security.’ As a result of this blurring, any goal can be considered to be a security goal, robbing the concept of any theoretical power.”⁵ By separating the two concepts, we can gain a more subtle appreciation and analysis of states’ goals when they act.

Before analyzing the US-UK nuclear relationship through this lens it is useful to take a step back and contemplate nuclear relations in their entirety. The following figure presents the links between states with nuclear weapons. This graphical representation of relationships already shows a core formed by the United States, France, and the United Kingdom, who are each connected to every other state. Each link represents the fact that

⁴ Skyler Cranmer, Bruce Desmarais, and Justin Kirkland, “Toward a Network Theory of Alliance Formation,” 298.

⁵ James Morrow, “On the Theoretical Basis of a Measure of National Risk Attitudes,” *International Studies Quarterly*, 31:3 (December 1987), 426. Morrow also points out how, since World War II, the pursuit of autonomy goals has been viewed as illegitimate, pushing states to justify all actions under the umbrella of ‘security’ needs.

both states are interested in the other's nuclear weapons. This can be because they see the other as a rival or security threat or because of friendly ties, such as alliances.⁶ Thus, Pakistan and India are linked because of their contentious ties over the status of Kashmir and state-sponsored terrorism while Russia and India enjoy friendly, economic-oriented relations. Similarly, the links between China and North Korea and China and Pakistan illustrate China's concern about the actions of both of these states with respect to their nuclear weapons and how conflicts would affect China.⁷ As can be seen, most countries are linked to one another, with Israel proving to be the outlier (likely due to the unacknowledged nature of its nuclear arsenal).



⁶ The author judged whether or not any two countries should be shown as linked in this figure.

⁷ Although China initially helped both countries develop nuclear weapons, today it is more likely concerned about a nuclear conflict between North Korea, the United States, and South Korea or between Pakistan and India.

The following figure allows us to return to our primary area of focus, the United States and United Kingdom nuclear relationship. Here, however, context is shown for the current relationship. The dashed lines between France and Russia and the United Kingdom and Russia indicate the fact that even though all three countries have a relationship concerning nuclear weapons, working together on issues such as the Iran nuclear accords, non-proliferation, and other matters, there exist no formal ties between them concerning nuclear weapons. If we were to present other active ties, the figure would be little changed apart from a triangle composed of China, North Korea, and the United States.⁸ The Iran nuclear deal would also have to be represented by ties between the P 5+1 and Iran.

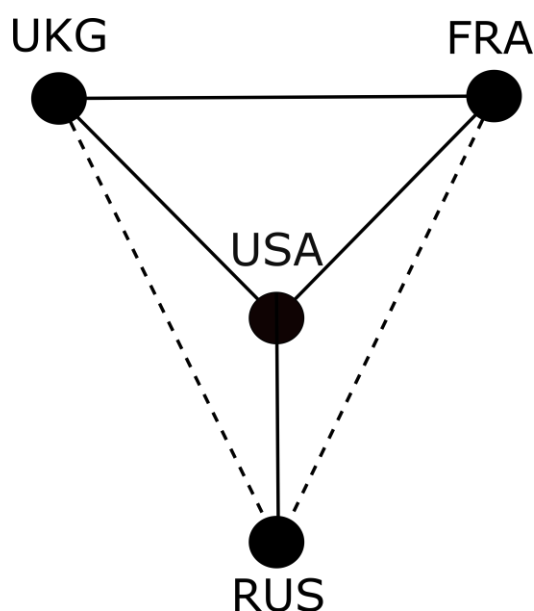
Up to now, all nuclear arms reduction treaties have been purely bilateral between the United States and Russia though France and the United Kingdom have, at times, been a reason for why a treaty was created.⁹ In fact, France and the United Kingdom's refusal to play a part in past treaties has forced the United States to make concessions on their behalf, counting French and British SLBMs towards the total number of American SLBMs.¹⁰ This was the case with the 1972 SALT I accords which "entitled the United States to have no more than 710 SLBM launchers on 44 modern ballistic missile

⁸Although there are very few active ties, there are many more defunct one. These were all devoted to helping a country develop nuclear weapons: France-Israel, Russia-Iran, China-Pakistan, China-North Korea, Pakistan-North Korea, Pakistan-Iran, Israel-South Africa, and Russia-China.

⁹ See, specifically, the INF Treaty which NATO as a whole wanted and pushed the United States to negotiate: U.S. Department of State, "Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Elimination Of Their Intermediate-Range And Shorter-Range Missiles," December 8, 1987, <https://www.state.gov/t/avc/trty/102360.htm>.

¹⁰ Eric Grove, "Allied nuclear forces complicate negotiations," *Bulletin of Atomic Scientists* (July 1986), 21.

submarines” whereas the USSR was allowed to have “no more than 950 SLBM launchers on 62 submarines.”¹¹ This disparity was mostly accounted for by the United Kingdom’s 64 SLBM launchers and 4 submarines and France’s soon to be completed and commissioned 6 submarines with 96 SLBM launchers.¹² Nevertheless, the US Congress objected to the disparity in the level of forces and tried to ensure that it would not be replicated in future arms accords.¹³



Also notable in figure 1, figure 2 shows the clearly separate relationships between the United States, France, and the United Kingdom. The relationships concerning nuclear weapons between these states have always been bilateral, apart from their work together within NATO. In addition, while the United States and United Kingdom have an official

¹¹ “Strategic Arms Limitation Talks,” *Nuclear Threat Initiative*, October 26, 2011, <http://www.nti.org/learn/treaties-and-regimes/strategic-arms-limitation-talks-salt-i-salt-ii/>.

¹² “Resolution,” *Global Security*, accessed April 21, 2017, <http://www.globalsecurity.org/wmd/world/uk/resolution.htm>; “Le Redoutable class,” *Military Today*, accessed April 21, 2017, http://www.military-today.com/navy/le_redoutable_class.htm.

¹³ The Jackson Amendment tried to ensure that this would not happen again. See: Michael Krepon, “The Jackson Amendment,” *Arms Control Wonk*, August 6, 2009, <http://www.armscontrolwonk.com/archive/402414/the-jackson-amendment/>.

relationship, the United States and France have tried to keep their cooperation secret,¹⁴ skirting the edges of both national and international law in the process.¹⁵ These separate, confidential relationships are a defining attribute of the complex nature of the relationship. Instead of a minimum of two relationships (a cooperative relationship between the United States, France, and the United Kingdom and a separate security relationship between the three and Russia), we see six relationships that must be managed at one level or another, and NATO, which could be included, would be a seventh. The fact that these dyadic relationships are not integrated leads to needlessly complex interactions.

One example of the complexity that has developed due to the lack of overlap between the USA-FRA and USA-UKG links concerns the negotiations between the United States and France in 1971-1972. During the United States' negotiations with France over sharing information, it kept the United Kingdom abreast of all developments "despite an agreement with the French that neither side would tell 'third parties' about the talks."¹⁶ The United States' actions in this case could have threatened both its burgeoning relationship with France concerning nuclear weapons and future French-United Kingdom talks on the subject. The former might also have changed France's attitude on the subject that they were discussing at the time, nuclear safety. Although France was then "taking a 'conservative' (that is, risk avoidance) view on safety," to which the United States was

¹⁴ William Burr, "US Secret Assistance to the French Nuclear Program, 1969-1975: From 'Fourth Country' to Strategic Partner," *Wilson Center*, July 2011, <https://www.wilsoncenter.org/publication/us-secret-assistance-to-the-french-nuclear-program-1969-1975-fourth-country-to-strategic>.

¹⁵ Bruno Tertrais, "US-French Nuclear Cooperation: Stretching the Limits of National Strategic Paradigms," *WMD Junction*, July 26, 2011, http://wmdjunction.com/110726_us_french_cooperation.htm.

¹⁶ William Burr, "US Secret Assistance to the French Nuclear Program, 1969-1975."

providing information on important safety mechanisms for weapons, France might have moved in the opposite direction, accepting risk, if it had found out that the United States was lying about the confidentiality of the talks.

Today, interactions are still needlessly difficult due to the stove-piped nature of the agreements. As we have seen, even though the United Kingdom and France have an official agreement in place to conduct joint nuclear weapons research, they have to go to great lengths to keep some of this research private from the other. This is despite the fact that the United States and France have a long-standing, secret, nuclear agreement concerning nuclear weapons data.¹⁷ The simplest way to overcome this difficulty would be for the United States to amend the Mutual Defense Agreement with the United Kingdom to allow the sharing of information. Beyond the practical benefits for all parties, this might have the additional benefit of further scientific discoveries as more data would be available to researchers. In the absence of any amendment, similar inefficiencies will persist and could lead to important information failing to be put to best use.

Although it leads to needless complexities, the bilateral nature of the agreements can also be seen as an advantage for the United States. Most importantly, it cements the asymmetric nature of the relationships, where the United States enjoys a vast power imbalance vis-à-vis both of its partners. In this view, the United States manages to isolate each of its two allies and secures better terms than it would if they negotiated jointly.

¹⁷ Jeffrey Smith, "France, U.S. Secretly Enter Pact to Share Nuclear Weapons Data," *The Washington Post*, June 17, 1996, https://www.washingtonpost.com/archive/politics/1996/06/17/france-us-secretly-enter-pact-to-share-nuclear-weapons-data/cf9d04f3-aabe-4b77-b793-95163527da8e/?utm_term=.9e4f75ebb001.

Turning to alliance theory, the benefits and costs the states fit within Morrow's description of security and autonomy benefits. In receiving information concerning nuclear weapons, the United Kingdom and France are increasing their security, as they are then able to build, maintain, and deploy more advanced weapons. In exchange, the United States sees autonomy benefits. First, as we have seen, the United States receives base access from the United Kingdom, giving it greater capabilities and allowing the United States to more effectively project power across the world.¹⁸ Second, by sharing this information with France and the United Kingdom, the United States lessens its burden. This is not simply a monetary burden, which is of relatively little consequence to the United States but, more importantly, a security burden. We can consider the agreements as relocating part of the burden of protecting NATO from Russia or any other enemy from the United States to France and Britain. This then allows the United States to concentrate on other issues and deploy forces in other areas of the world. Since even the United States confronts force deployment limitations, this can be quite valuable as it leaves more troops to fight in other conflicts that may develop.

Whereas the benefits of the asymmetric, bilateral relationships are undoubtedly useful, it is not apparent that the same benefits would not be available if the agreements were multilateral between the three countries. Moreover, the bilateral nature of the ties means that engaging in nuclear arms reduction talks are more onerous, requiring separate overtures to each country. Scholars who have considered the possibility of bringing

¹⁸ Morrow specifically mentions base access as an example of an autonomy benefit in James Morrow, "Alliances and Asymmetry: An Alternative to the Capability Aggregation Model of Alliances," *American Journal of Political Science* 35:4 (November 1991), 905.

France and the United Kingdom into the arms control talks between the United States and Russia view the process of creating a “multilateral nuclear arms reduction framework” as a major impediment.¹⁹ This would be easier if the United States, France, and the United Kingdom were already discussing nuclear relations in an open, multilateral setting, instead of a compartmentalized fashion.

The complication presented by multilateral talks is not, however, an immediate concern. Seeing that there appears to have been no actions by the United States, France, or the United Kingdom to move to such a model, talks are likely to stay bilateral even though multilateral research agreements would be at least as beneficial and perhaps even more so than bilateral ones. This model and the current situation are both products of the Cold War when they were established. France and the United Kingdom’s relatively small nuclear forces mean that not only have they been unwilling to cut due to the size of the American and Russian arsenals but the United States and Russia can also accomplish all of their arms accords by agreeing to limitations on a bilateral basis. Both countries will have to more than half their current number of weapons before the French and British weapons become relevant to the process.

Within a discussion of multilateral talks, individual level decisions, which we have looked at only in passing, will play an even greater role. This comes after they have already played an extremely large and important role in bilateral negotiations. The

¹⁹ Alexei Arbatov, James Acton, and Vladimir Dvorkin, “Prospects of Engaging the United Kingdom And France in Nuclear Arms Control,” *Carnegie Moscow Center*, April 2014, http://carnegieendowment.org/files/CMC_Article_ArbatovActonDvorkin-web_en.pdf. See also Steven Pifer and James Tyson, “Third-Country Nuclear Forces and Possible Measures for Multilateral Arms Control,” *The Brookings Institution*, August 2016, https://www.brookings.edu/wp-content/uploads/2016/08/acnpi_20160824_multilateral_arms_control_01.pdf.

Skybolt crisis was the first situation we looked at and showed immediately the importance of individual level decisions. Failures by McNamara to promptly inform his counterpart Thorneycroft led to the initial 'crisis' while Thorneycroft's following decision not to "plead" for an alternative led to the affair becoming a threat to US-UK relations as it dragged on. This level of individual importance is even better illustrated by French President Charles de Gaulle. De Gaulle's actions personally dictated not only France's decision to develop its own, independent nuclear deterrent as he rejected Kennedy's offer of the Polaris Sales Agreement, but in so doing he used it to justify keeping the United Kingdom out of the European Economic Community. In multilateral talks, individuals would be able to block agreements which affect more than just their country and one other and as talks expand to even more countries it will become more and more difficult to reach consensus. While the other participants may be able to go ahead without one party or another, this is not guaranteed and presents complications for future rounds of agreements.

Looking forward, none of these factors are likely to change. For all that International Relations is premised on rational actors, at the individual level, this is often not the case and pride and ego can be strong motivating factors. It is also not clear, however, that one way is better than another. In terms of arms accords, bilateral negotiations are simpler and therefore likely to be faster. In terms of friendly relationships, however, multilateral work by the United States, France, and the United Kingdom would appear to offer more benefits than each country having separate research agreements with the others. As both the United States and the United Kingdom establish stronger research ties with France, a multilateral framework becomes more likely and

more useful yet this would also require Congressional approval in the United States.

Whereas the United States' current agreement with France is authorized by the President of each country, US law still limits the scope of research. A multilateral nuclear weapons research agreement might be considered a treaty and thus need Senate ratification. This is likely in the current environment but not assured and Congress' lack of oversight of the American-French secret research agreements which stretched the limits of the law implies that there is no real threat of their curbing Presidential authority in this situation.

The only obvious factor which could change in short order is the United Kingdom's attitude to nuclear weapons and, more importantly, Scotland's continued presence within the United Kingdom. With Scottish independence would come numerous questions about what would happen to Britain's military facilities in Scotland. One thing that is clear, however, is that Scotland is decidedly anti-nuclear weapons and would demand that Britain withdraw its nuclear submarines and nuclear weapons storage and research facilities from the territory in the following years. This would be a logistical nightmare and exorbitantly expensive for Britain, requiring up to 50 billion pounds and twenty years to fully accomplish, and might lead Britain to unilaterally disarm.²⁰ How this would affect ties is impossible to determine without knowing what Britain would decide to do. It would seemingly point to a slow-down in joint research efforts between the United Kingdom and France and the United States, yet it could also provoke the opposite response if Britain were to try to move research abroad and lean on the United

²⁰ Scottish Affairs Committee, "Trident is Removed from Scotland, what next?" in *The Referendum on Separation for Scotland: Terminating Trident – Days or Decades?* October 23, 2012, <https://www.publications.parliament.uk/pa/cm201213/cmselect/cmsscota/676/67607.htm>.

States and France more. The overall effect is therefore difficult to determine, though likely negative.

Taking a step back, it is possible to see the US-UK relationship within a wider context. Here, outside actors are recognized as equal, important factors in the development of relationships, providing context for decisions. Nevertheless, the bilateral nature of the US-UK relationship means that they can choose to ignore other actors and follow what they deem to be in their best interests. This includes the possibility of Britain moving away from a nuclear deterrent. To recoup development costs, the United Kingdom could sell its submarines to the United States, which is eager to expand its Navy and submarine force.²¹ This would allow the United Kingdom to increase manpower levels and fully man its two upcoming aircraft carriers, both of which are more useful in projecting power than nuclear weapons.²² In this new situation, the United Kingdom could then lead multilateral talks for further nuclear disarmament among the remaining states.

²¹ Sam LaGrone and Megan Eckstein, "Navy Wants to Grow Fleet to 355 Ships; 47 Hull Increase Adds Destroyers, Attack Subs," *U.S. Naval Institute News*, December 16, 2016, <https://news.usni.org/2016/12/16/navy-wants-grow-fleet-355-ships-47-hull-increase-previous-goal>.

²² Ben Farmer, "Britain's vast new aircraft carriers will make enemies 'think twice' about starting war," *The Telegraph*, May 201, 2016, <http://www.telegraph.co.uk/news/2016/05/19/britains-vast-new-aircraft-carriers-will-make-enemies-think-twice/>.

Conclusion

Looking Forward

The US-UK nuclear relationship presents a set of Cold War era agreements in a modern setting. Written thirty years ago, this study would have focused on the security benefits that British nuclear weapons provide the world against Communism. Today, some argue that nuclear weapons themselves are obsolete. Regardless of whether this is true, the security benefit of the agreements is no longer a main focus. Instead, it becomes a question of tradeoffs and as the United States and Russia continue to decrease the size of their nuclear arsenals and nuclear weapons become further stigmatized, these change.¹

This study attempts to situate the relationship in a modern context after looking at the history of the agreements. Weighing costs and benefits, it is clear that the agreements are a benefit to the United Kingdom. For the United States, the agreements also provide a (smaller) clear benefit. The only question is whether or not they have changed the United Kingdom's behavior in a manner that hurts American interests. This would include helping the United Kingdom afford nuclear weapons when they would not otherwise be

¹ U.S. Department of State, "New START," *U.S. Department of State*, accessed April 23, 2017, <https://www.state.gov/t/avc/newstart/>.

able to do so. These costs include both the infrequent expense of building new submarines and the yearly costs of maintaining a nuclear deterrent, five to six percent of the United Kingdom's entire defense budget.² This is not due to any moral issues associated with nuclear weapons but because of the additional conventional capabilities the United Kingdom could deploy if it reallocated the money.

Having chosen to reinvest in its submarine force, the United Kingdom will not have to make any significant decisions about its nuclear deterrent until the 2040s. Only Scottish independence would be sure to push the issue to the fore again before then and national pride at such a moment might influence the decision to keep the nuclear weapons capabilities despite the extremely high cost of moving the facilities. The special nuclear relationship between the United States and the United Kingdom therefore appears set to reach its centenary, little changed from its original incarnation. Although NATO and the United Kingdom can point to a resurgent Russia and unpredictable North Korea and Iran as security threats today, this may not be the case then. A reappraisal of the costs and benefits of the agreements and the continued need for the Mutual Defense Agreement will then be in order. Absent a change in appraisal by the US President or UK Prime Minister, this will require that the United States Senate take a closer look.³

² UK Parliament, "House of Commons Written Answers," 20 December 2012.

³ Parliament has little say in the matter as the MDA has no legal status in the United Kingdom. See Norton-Taylor, Richard, "UK to step up collaboration with US over nuclear warheads."

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