

**More than One Way to Skin a Kant:
A Liberal-Evolutionary Theory of the Democratic Peace**

Abstract:

The democratic peace is one of the most important cognitions in the field of international relations in general and probably the most important for the liberal approach to IR in particular. Unfortunately, however, liberal attempts to theorize this empirical phenomenon have neglected the phenomenon's generative mechanisms and displayed a uniformly whiggish orientation. Using the conceptual tools of spontaneous order, cybernetics, complex adaptive systems, coordination, and metacoordination, this paper develops a non-progressive and non-teleological, but manifestly liberal, model of the development of the democratic peace.

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That the theory of the democratic peace describes a testable empirical reality is broadly accepted, and it will not be contested here. It represents one of the most fruitful and one of the oldest research projects in the history of international relations. Many questions relating to this proposition have already been answered with more or less precision, but one of the most obvious questions remains unanswered, namely, how did the process start?¹

Kant originally proposed a number of conditions such as republican constitutions, a federation of free states, and a right of free communication that, if fulfilled, should eliminate war among democracies.² The presumption in his essay is that democracies will interact peacefully with each other as soon as these conditions obtain. In fact, Kant refers to "Providence" (*Vorsehung*) as the force that will secure this outcome in the First Supplement. Many scholars have since modernized Kant's conditions for application to the current international environment and even added a few more, including interdependence, comparable levels of wealth, and a left-liberal orientation.³ All of these conditions may contribute to sustaining the observed pattern of behaviour, but there is no reason to assume that these sustaining conditions are also generative mechanisms. Just because all the necessary ingredients are present in the same system, there is no a priori way of knowing whether or not they will combine fortuitously to achieve the desired result.

A second unexplored dimension of the democratic peace is the remarkable growth in the number of democratic states. Again, the arguments in the literature tend to assume that, once there is a quantity of democratic states interacting peacefully, new democracies will automatically and unproblematically be integrated into the established dynamic.⁴ It is empirically incontestable that, at least in the modern era, there was

¹ Two exceptions to this observation include John Owen, "How Liberalism Produces Peace," International Security 19.2 (1994): 87-125 and Erik Gartzke, "Kant We All Just Get Along? Opportunity, Willingness, and the Origins of the Democratic Peace," American Journal of Political Science 42.1 (1998): 1-27. As will be shown later both of these authors have also black-boxed the generative dynamics despite claiming otherwise.

² Immanuel Kant, "Perpetual Peace: A Philosophical Essay," Kant's Principles of Politics, ed. and trans. W. Hastie (Edinburgh: T & T Clark, 1891).

³ For these more recent conditions, see John Oneal, Bruce Russett, Michael Berbaum, "Causes of Peace: Democracy, Interdependence, and International Organizations, 1885-1992," International Studies Quarterly 47 (2003): 371-393; Michael Mousseau, "The Nexus of Market Society, Liberal Preferences, and Democratic Peace: Interdisciplinary Theory and Evidence," International Studies Quarterly 47 (2003): 483-510; John Macmillan, On Liberal Peace: Democracy, War and the International Order (London, New York: I.B. Tauris, 1998): 12-21; John Macmillan, "Whose Democracy; Which Peace? Contextualizing the Democratic Peace," International Politics 41.4 (2004): 472-493, respectively.

⁴ A notable exception to this generalization is William Thompson, "Democracy and Peace: Putting the Cart before the Horse?," International Organization 50.1 (1996): 141-174. Although Thompson problematizes the integration of new states into an existing group, he does so by inverting the causal

initially only one democracy, and then there were few, and now 123 of 193 (63%) states are electoral democracies according to one index.⁵ Because democratic peace theorists, however, have focused on what sustains peaceful interaction, they have uniformly ignored this unprecedented growth in the ubiquity of democracy as a form of socio-political organization. Even if one were to postulate causal independence between the spread of democracy and the peaceful interaction between democracies, which may not be necessary, one ought to account for how the group of existing democracies has been able to absorb this influx, with all the particular interests and potential sources of conflicts it brings, into the sustenance theory.

In order to fill these gaps, I argue that the democratic peace is a spontaneously emerging form of social order, and it has evolved from a case of strategic interaction among a small group of democratic states to a meta-coordinated bloc of states through processes of simple and complex learning at the state and especially the interstate levels. I hypothesize that this transition represents the transition from a cybernetic to a complex adaptive system. Although Kant's original theory will not be engaged directly any further, the theory presented here should explain how the interdemocratic system emerged and grew without relying on providence.

The paper will proceed as follows. First, the elements of a generic cybernetic social system will be described. Second, complex adaptive systems will be described in the abstract, and a possible mode of transition from a cybernetic social system to a complex adaptive social system will be proposed. Third, democracy will be defined so that the beginning of the strategic interaction between the first two democracies can be identified and compared to the cybernetic model. Fourth, the empirical evidence for the transition to the interdemocratic complex adaptive system and this system's evolution will be evaluated. Finally, a hypothesis of a formal model to account for the growth adaptation of the complex adaptive system and its adaptation relative to its environment and its own structural evolution will be presented.

In the language of conventional social science, the independent variables of this study are the sensitivity of the democratic state subsystems to feedback and the structure of the interdemocratic system of states. There is an intervening variable, which is the type of social learning that different structures enable. The dependent variables are the

sequence proposed by most other theorists, which is inconsistent with parts of the theory being proposed here.

⁵ Freedom House, "Electoral Democracies 2007," <http://www.freedomhouse.org/template.cfm?page=368&year=2007> (accessed 25.07.07).

behaviour of democratic states and, because both structures described in this study include feedback loops as components, the two structures should also be considered dependent variables after a time lag.

It is worth noting that, although some of the processes, such as waves of democratic diffusion, included in this theory have recurred, a functioning democratic peace process has only been achieved once,⁶ so it is a case where $N=1$. As a result, some historical detail will be provided throughout to demonstrate and justify the theoretical claims being made, but the unique nature of the process restricts the choice of methodology greatly. Whereas a probabilistic argument would be possible with a large n statistical survey or a smaller n comparative study, this argument is necessarily possibilistic,⁷ for the only possible confirmation would have to rely on a counterfactual history, which itself would be immune to verification.⁸

Cybernetic Systems

In the abstract

The foremost pioneer of cybernetics in social sciences was Karl Deutsch, and the model presented here is a variant of his abstract theory.⁹ A cybernetic system is one that can receive input, process it, and generate output. Cybernetic systems can be natural, as in the case of Darwinian evolution, artificial, as in a cruise control function in a car, or social, as in the case of a market. They can also be classified according to whether they

⁶ The only other historical period in which a similar dynamic could have arisen was in classical Greece up to the point when the Delian League transformed into the Athenian Empire (c. 476-475 B.C.). However, it has been shown that the early Greek democracies were neither very democratic nor very peaceful. See Owen, How Liberalism, 98 and Bruce Russett and William Antholis, "The Imperfect Democratic Peace of Ancient Athens," Grasping the Democratic Peace: Principles for a Post-Cold War World ed. Bruce Russett (Princeton: Princeton University Press, 1993): 43-71.

⁷ Another way to pose this problem is that there would be 0 degrees of statistical freedom in any test of this model, so a statistical calculation of its probable correlation to empirical reality would be effectively worthless. A computational model could reinforce, but not verify or falsify, the proposed mechanisms. For the merits and perils of possibilistic argumentation in IR, see James Keeley, "To the Pacific? Alexander Wendt as Explorer," Millennium: Journal of International Studies 35.2 (2007): 417-430.

⁸ The construction of a counterfactual history will not be attempted here, except perhaps in an implied sense. For the necessity of counterfactual histories in arguments regarding the effectiveness of institutions and their evolution, see Thomas Biersteker, "Constructing Historical Counterfactuals to Assess the Consequences of International Regimes: The Global Debt Regime and the Course of the Debt Crisis of the 1980s," Regime Theory and International Relations eds. Volker Rittberger & Peter Mayer (Oxford: Oxford University Press, 1993): 315-338; Robin Cowan & Dominique Foray, "Evolutionary Economics and the Counterfactual Threat: On the Nature and Role of Counterfactual History as an Empirical Tool in Economics," Journal of Evolutionary Economics 12 (2002): 539-562; Radoslav Dimitrov, Detlev Sprinz, Gerald DiGiusto & Alexander Kelle, International Nonregimes: A Research Agenda Paper presented at the 47th Annual Convention of the International Studies Association, San Diego, March 22-25, 2006.

⁹ Karl Deutsch, The Nerves of Government: Models of Political Communication and Control (New York: The Free Press, 1966): 75-127.

are intended or spontaneous.¹⁰ All social cybernetic systems require three elements: communication, storage or memory, and a control mechanism.¹¹ In terms of evolution, which is an elegantly simple natural system, if species are considered the units, communication exists in the form of interaction between species. Control is exerted by natural selection, and memory is provided by the reproduction of genes. In the case of social cybernetic systems, communication takes the more familiar form of transmitting information, but the definitions of “information” and “transmission” must be broader than in their standard usages. In this case, information can be both natural, as in the cases of “what is wheat?” and “when is wheat ripe for harvest?” and cultural, as in the cases of “what does one do with wheat?” or “when is the right time to use it to make a birthday cake?”. Social transmission can be both explicit, as in the cases of formal education or email, and implicit, as in the case of socialization. Social storage capacity or memory can be both centralized in the form of archives, the internet, and libraries or distributed, in which the members of a society remember socially relevant information individually. Control mechanisms contain rules for processing input and managing output. The control mechanism can be internal, as in the case of collective decision-making, or environmental, as in the case of famine due to poor agricultural techniques.

Cybernetic systems are also capable of simple learning as opposed to complex learning, which will be described below.¹² Simple learning is the process of decreasing the discrepancy between the system’s output and its programmatic trajectory; that is, the system becomes more precise in its output.¹³ For example, in the case of a neophyte driving a car, the course of the car will at first be fairly erratic, weaving right and left between the lane markers. As the driver gains experience, the amplitude of these deviations and corrections will decrease. Whether or not learning occurs, the capacity to learn is dependent on the number of nodes (communicating units) in the social network, the facilities for communication and memory, the rules for processing information within

¹⁰ All artificial cybernetic systems are intended, but natural and social cybernetic systems can be either intended or spontaneously emerging.

¹¹ Generically, cybernetic systems also require receptors, effectors, and feedback controls. See Deutsch, *The Nerves*, 128. The first two elements can be assumed in the form of human sensory organs and capacity for autonomous behaviour. The latter quality, especially when investigating a quality of democracies, is of primary interest.

¹² All references to learning at the international level for the period of 1836-1913 will denote simple learning unless otherwise indicated.

¹³ “Precision” here is used in a technical sense and must be distinguished from accuracy. Precision refers to the ability to reduce variation in output over a number of iterations of the same process, but accuracy refers to how correct or “true” any instance of output is. For example, imagine two students try three times each to calculate Pi, and the first student calculates 3.20, 3.30, and 3.10, and the second student calculates 3.971, 3.973, and 3.972. The first student is more accurate but less precise, and the second is more precise but less accurate.

the network, and upon on the quality of incoming information. Because the possible number of connections in a network increases geometrically with the number of nodes, even a small proliferation of nodes would increase the system's capacity to learn significantly. Clearly, such increases are of little use if there are physical or social barriers that limit the interaction between nodes. Thus, if information cannot physically be transmitted between two nodes while that information is still relevant, learning is unlikely. Similarly, if there is an injunction against some nodes being able to interact, as would be the case if a portion of the population is forbidden from communicating, this would be a pathological norm or rule.

Many social systems can be classified by whether they are generally hierarchical or anarchical. A corporation or a totalitarian dictatorship would approach ideal types of the former, and an unrestricted market or a failed state would approach ideal types of the latter. Democracies are interesting because they defy this conventional spectrum. Whereas an authoritarian leadership controls the populace in an autocracy, and there is an absence of control by definition in anarchy, democracies are characterized by a continuous feedback loop of control. That is, the government controls the citizenry, which controls the government, etc. Therefore, democracies represent a self-directed form of social organization, in contrast to other possible forms.

Stable democracies also contain systems of checks and balances, which is a contrived continuous feedback loop *within* each stable democracy. In this sense, each democracy can be considered at least a cybernetic system, if not systems of even higher levels of self-organization.¹⁴ These characteristics of democracy, as a cybernetic social system, also provide insight into the norms vs. structure debate within the democratic peace literature. Cybernetic systems are capable of simple learning, and norms are the object of democratic and interdemocratic learning. Democratic structures, including markets, are the conduits through which information, whether in the form of novel input or feedback, is processed and output in the form of state behaviour is expressed.

Although this image of cybernetic social systems, with democracy as one instance of such systems, is largely congruent with Deutsch's theory, there are also some important divergences. First is the distinction between simple and complex learning, the latter of which allows for catallaxy, which will be described below. Second, although

¹⁴ One example of trying to establish democracies as a higher form of spontaneous social organization, albeit *not* at the interdemocratic level, can be found in Gus diZerega, Democracy, Spontaneous Order, and Peace: Implications for the Classical Liberal Critique of Democratic Politics Independent Institute Working Paper #20 (Independent Institute, 2000).

Deutsch allowed for a type of complex learning, his conception would require a centralized or collective consciousness or mind.¹⁵ Third, the characteristics of the particular cybernetic systems described here are more demanding than the trio of receptors, effectors, and feedback controls that he required. Fourth, transportation is, in contrast to Deutsch, a means of communication because any individuals and finished goods being transported are also carriers of information that contain messages, even if these are implicit. Finally, this model distinguishes between simple and meta-coordination/catalaxy, whereas Deutsch did not.

Complex Adaptive Systems

According to one formal definition, a complex adaptive system “acquires information about its environment and its own interaction with that environment, identifying regularities in that information, condensing those regularities into a kind of ‘schema’ or model, and acting in the real world on the basis of that schema”.¹⁶ Although a complex adaptive system may be structurally identical to a cybernetic system, there is an important difference; namely, that the former is able to learn complexly. Complex learning occurs when the system is able to alter its objective or rules of operation autonomously. In the example of the neophyte driver above, the goal was merely to follow a straight course. If the driver learns complexly, she can ask herself where she wants to go, and whether driving or public transport would be more efficient. Naturally, complex learning thus requires the existence of a goal and perhaps also a degree of self-consciousness to assess performance and utility. Complex learning is a characteristic of the larger, categorical, and perhaps more fundamental difference between complex adaptive systems and cybernetic systems, which is that the former is not necessarily homeostatic. Whereas cybernetic systems have a relatively fixed equilibrium state, and to the extent that they engage in simple learning, they can achieve output that tends towards an equilibrium; complex adaptive systems can vary in their equilibrium states while maintaining some structural continuity, and any equilibrium towards which their behaviour tends is also variable. The cybernetic and complex adaptive systems to be described below display similarity in that they are both self-organized, which is to say that any structural design and systemic behaviour are the result of lower-level, decentralized processes.

¹⁵ Ibid., 133.

¹⁶ Murray Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex* (New York: Freeman & Co., 1994): 17.

To make the transition from a social cybernetic to a complex adaptive system, then, the foremost requirement would be an expression of a goal. This would function as the 'schema' in the definition above, which would allow behaviour to be modulated towards the goal. Instead of feedback pushing the system to and fro, there would be an abstract model of where the system could go. This would allow for downward causation, in which the system level properties influence attributes or behaviour of its components, and for emergence, in which system-level properties are not explicable merely with reference to the behaviour of components.

As the term implies, complex adaptive systems must be able to adapt in some sense. Such adaptation can take two forms. First, adaptation can occur relative to the environment, in which the system gains a greater ability to reproduce itself or maintains its ability in the context of potentially detrimental environmental changes. Second, a system can adapt relative to itself. That is, adaptation in one part of the system may present costs or challenges for other parts, which in turn must also change to maintain overall fitness. For example, if an organism evolves flight feathers instead of digits, or if a centipede evolves ever more legs, these will be a hindrance unless the organism also evolves the capacity to use them. A bird that cannot fly is often just a sitting duck, and a centipede that must use two or six legs to drag >90 others will be clumsy and easy prey.

The interdemocratic, cybernetic system

Conceiving of the democratic peace as a cybernetic social system imposes some limitations on the definition of democracy that can be used. First, the decision-making process must be sensitive to the majority's preferences. Second, there must be a functioning market economy so that the society can receive economic feedback regarding its decisions, the quality of its information, and the efficiency of its operational rules. Third, the democracies must be secular; otherwise, the learning process would be predetermined to some degree by an overriding and a priori set of preferences derived from a source external to the system and its effective environment. Fourth, there must be some facilities for communication among those whose preferences influence decision-making, which must also be a majority. It should be noted that these limitations present an image of democracy that is fairly consistent with most common definitions and usages of the term. They also describe a type of democracy that is manifestly liberal, though the justification of this accidentally liberal content is contingent upon its explanatory power.

The first year in modern times in which two democracies existed whose interests could conceivably collide or coincide was 1836, and these two states were the United

States and Great Britain. That the United States can be considered a democracy from its genesis is uncontroversial. It is common, however, to date the commencement of Great Britain's democratic status at 1832 with the passage of the Reform Act. While this act did provide for considerable expansion of enfranchisement in Britain, the Stamp Tax on newspapers was so high that "Newspapers passed from hand to hand ..., men clubbed together to buy them...".¹⁷ Until 1836, when the tax was reduced by 75%, political news and opinion were only sporadically available to the mass public, so Great Britain failed to meet the communication criterion of the definition above until this reduction, because political information and informed debate had remained a luxury commodity.¹⁸ Without the capacity for information about policy to be acquired by those who influence that policy, learning was an individual and haphazard affair rather than a social process.

Simple Coordination

It seems quite probable that the stag hunt type of assurance game is analogous to the interaction between the two original modern democracies.

Stag Hunt

		Actor B	
		Peace	War
Actor A	Peace	3,3	2,0
	War	0,2	1,1

Each had much to gain from cooperation, much to lose if defeated in a war, and a substantial and suboptimal diversion of resources in the event of an indecisive war between them. This is analogous to Daniel Klein's concept of simple "Schelling" coordination, in which "we hope to coordinate our actions *with* the actions of others, by coordinating to some common principle or focal point".¹⁹

Simple coordination as an heuristic device also makes the idea of more precise output over time more easily comprehensible. If we consider the War/War cell a starting

¹⁷ Robert Webb, Modern England: From the Eighteenth Century to the Present, 2nd ed. (London: Allyn & Unwin, 1980): 164.

¹⁸ This date also coincides much better with the Polity IV index, in which Britain is considered more autocratic than democratic until 1837 with a score of -2 (on this index, a score of -10 is the most autocratic score, and 10 is the most democratic score). See Polity IV Project Polity IV Annual Time Series 2004, Center for International Development and Conflict Management, <http://www.cidcm.umd.edu/polity/data/p4v2004d.xls>. Although this improved correspondence is not of any intrinsic value to this study, it might make testing the theory presented here with statistical means simpler.

¹⁹ Daniel Klein, "Convention, Social Order, and the Two Coordinations," Constitutional Political Economy 8 (1997): 324-327, emphasis in original.

point in which war is a likely response to conflicting interests, and the Peace/Peace cell the equilibrium state to which the system's output tends, then more precise output means simply that the states concerned will fluctuate less drastically from the top right to the bottom left over time. Their trajectory towards Peace/Peace will become less erratic and more stable as they learn.

To make the case that the pattern of interaction between these two nascent democracies followed a rough trajectory from the bottom right cell of the stag hunt matrix toward the top left cell, three types of information are indicative of the capacity of the democratic subsystems' and the interdemocratic systems' capacity to learn. These are: 1) population growth as an indicator of the size of two subsystems and the quantity of nodes therein, 2) the development and use of communications technology and migration and, 3) conflict behaviour between these subsystems. Memory and storage can be largely assumed in the form of archives, and the democratic political and market structures provide the subsystemic control mechanisms. The control mechanism of the interdemocratic cybernetic system is conflict itself, which became an increasingly rare phenomenon, as will be shown below. For reasons to be described below, the initial cybernetic phase of the system starts to lose coherence with the First World War. Therefore, data will only be presented for this initial phase until 1913.²⁰

Nodes

As stated above, one factor determining a cybernetic system's capacity to learn is the number of nodes it contains. In a democratic society, these nodes can take the form of individuals and group of individuals that are able to communicate autonomously, that is, on their own behalf. Although data for such sub-state groups has not been found, it can be assumed that they would have arisen and propagated in some proportion to the overall population where their formation was not prohibited. In democracies, this assumption should hold, so their proliferation can be assumed to increase with the general population. Table 1 shows the population increases in the U.S. and the U.K. from approximately 1830 until approximately 1913:

²⁰ There were, of course, more democracies than the two examined here by 1913. Collecting the required data for all, however, would not present a very parsimonious or intelligible picture. This isolated dyad, while admittedly part of a larger process, should suffice to illustrate the cybernetic characteristics of the early interdemocratic peace.

Table 1: Population of U.S. and U.K. c. 1830-c.1913 (in millions)²¹

	1831	1873	1899	1913	% change 1831-1913
United States	12.86	38.93	76.80	101.12	686.31
United Kingdom	13.99	23.41	31.88	36.57	161.40

Considering the arithmetic increases in population with the geometric increase in possible connections, both systems' capacity to learn increased enormously, even if one neglects the simultaneous increase in communications capabilities.²² Within this period, there are two mitigating factors to consider. First, there were nearly 4 million slaves in the United States according to the 1860 census data.²³ Although this raw number means little from a communication perspective due to widespread illiteracy, lack of education, and poverty, emancipation nonetheless represented a large stochastic increase to the effective number of communicative citizens. Second, relatively high rates of illiteracy meant that oral communication at the distance a voice can traverse was the limit for many individuals, though there may have been a great deal of literal "word of mouth" communication over distance. Further, the proportion of illiterates has been estimated at 65% in England early in the 19th century, but this figure was nearly 0% by its close, so the ability to communicate was increasing rapidly.²⁴

Communications

The period examined here evidenced perhaps the most dynamism in the field of communications after our own. First, there was the transition from sail to steam for trans-oceanic transport. The first transatlantic iron-hulled steamship was the *City of Glasgow*, which was launched in 1850.²⁵ Although steam transport was more expensive at

²¹ The British data correspond to the years indicated in Peter Lindert, "English Population, Wages, and Prices: 1541-1913," *Journal of Interdisciplinary History* 15.4 (1985): 624. American population figures are taken from the official census conducted nearest the year indicated; United States, U.S. Census Bureau, *Census of Population and Housing* (Washington: U.S. Department of Commerce, 1830, 1870, 1900, 1910)

²² Although it is possible to calculate the increase in the number of possible connections that would result from such increases in population, this number would not reveal any more information than the raw population data because technical, institutional, and habitual barriers prevented all of these individuals from actually perceiving and realizing this possibility.

²³ United States, U.S. Census Bureau, *Census of Population and Housing* (Washington: U.S. Department of Commerce, 1860): ix.

²⁴ Oded Galor & Omer Moav, "Das Human-Kapital: A Theory of the Demise of the Class Structure," *Review of Economic Studies* 73(2006): 90. The higher figure is toward the middle of the range of widely varying figures for this period. Especially towards the beginning of the 19th century, definitions of literacy were so diverse as to make contemporary estimates almost uniformly incredible.

²⁵ Raymond Cohn, "The Transition from Sail to Steam in Immigration to the United States," *Journal of Economic History* 65.2 (2005): 481. Although the first steam-powered transatlantic crossing occurred in 1838, it was more an attempt to prove a technical possibility, much like the 1969 moon landing, than

first for longer voyages, it became competitive with sail by the mid-1870s.²⁶ This reduced the duration of a transatlantic crossing for larger vessels from up to 2 months down to about 2 weeks.²⁷ Smaller and faster vessels were often employed for express freight. This new, cheap, and fast mode of transportation also contributed to the increasing waves of immigration to the United States, which is of course also a form of communication, albeit fairly inefficient and unidirectional. Whereas only 19.4% of the 85848 immigrants arriving in New York in 1858 travelled on steamships, 97% of the 277359 New York immigrants in 1873 opted for this mode of transport.²⁸ It must not be forgotten that physical relocation was also the only means to convey messages and individuals across the ocean until the transatlantic telegraph.

The next great communications innovation followed quickly on the heels of efficient transatlantic steam. The first transatlantic telegraph cable was laid in 1866, though most major cities in Britain and the U.S. had already been connected in national networks by this time.²⁹ Because usage of this telegraph line was relatively expensive at the time, it was primarily employed by those for whom rapid transmission of information was a necessity rather than a mere luxury; that is, by media outlets (newspapers), government agencies, and financial institutions. Fortunately, the former was also the primary and most efficient medium for mass dissemination of information about the state of affairs across the ocean and can thus serve as a rough indicator of the effect of transatlantic telegraphy on the availability of such information. In the ten years prior to the construction of the transatlantic telegraph line (1856-1866), the New York Times published 5315 pieces containing the term "Great Britain", and the Times of London published 701 pieces containing the term "America". For the following decade, the search yielded 7069 such articles in the New York Times (+33%) and 1618 such articles in the London Times (+130%).³⁰ Clearly, the telegraph accounted for much greater

a serious bid at a commercial market. Iron hulls and various measures to improve fuel efficiency, which made steam a realistic alternative, were not introduced until later.

²⁶ Ibid, 471.

²⁷ "Losing the Immigrant Business," New York Times 30.06.1857: 1.

²⁸ Cohn, The Transition, 472.

²⁹ Richard Baldwin & Phillippe Martin, "Two Waves of Globalisation: Superficial Similarities, Fundamental Differences," NBER Working Paper Series Working Paper 6904 (Cambridge: National Bureau of Economic Research, 1999): 3.

³⁰ Boolean searches with the terms "Great Britain OR England" and "United States OR America" were also conducted for the respective newspapers. In the case of the New York Times, the results of this search were much higher, but the ratio was approximately the same. In the case of the London Times, the Boolean search gave much higher results, but it was discovered on further investigation that the term "America" was habitually used to describe nearly any location in North or South America, including Canada. Because Canadian confederation, which occurred in 1867, was responsible for a great deal of this coverage, the more restrictive results are reported for both cases.

distribution of information in each subsystemic unit about the other. This was last great improvement in communications for this period, and it was the inauguration of electronic communication, which was to prove so transformative in later decades.³¹

So what?

It was stated above that cybernetic systems require control mechanisms, communication mechanisms, and storage media. The latter's form in the initial dyad was described briefly, and it can be taken as largely given. It has been established that the communications systems of each state as a cybernetic subsystem and between the subsystems increased substantially from 1836 to 1913. The control mechanisms of each subsystem were adequate by definition as of 1836, but they also experienced refinements with emancipation in the U.S. and with the Second Reform Act of 1867 in Britain, which enfranchised a further 1 million British men.³² It was also stated above that the pattern of interaction was analogous to a stag hunt scenario, in which the two actors tended to reap greater gains as the interdemocratic system learned and produced more reliably precise output. In short, the democratic subsystems and the interdemocratic system had greater capacities to learn, and the cybernetic and stag hunt models hypothesize that learning should have occurred, but did this process *actually* occur?

Prior to Britain's becoming democratic, these two states fought two wars against each other within three decades: the War of American Independence and the War of 1812. Therefore, a history of peaceful interaction prior to their mutual democratic status can be excluded. In terms of the stag hunt matrix, they were in the War/War cell. In the first phase of the democratic peace process, six conflicts occurred between the United States and Great Britain that had the potential to escalate into wars. These were the Canadian rebellions of 1837, the Maine-Texas border dispute of 1839-1846, the Oregon-Texas border dispute of 1844-1846, the Pig War of 1859, the Trent Affair of 1861-1862,

³¹ It is well-known that Marconi transmitted a transatlantic radio telegraph message for the first time in 1901 and that Bell received the patent on his telephone a quarter century before that. However, radio was not even used for non-experimental transatlantic telegraph communication, let alone radio telephony, until well after 1913 due to technical difficulties and governmental resistance. Even on a national level, telephone networks and general use were also slow to develop. Although the Scandinavian countries were "early adapters" to this technology, their rates of diffusion were absolutely low and considerable only relative to the paltry rates of diffusion in the United States and Great Britain. Even by 1914, after the period being analysed here, there were only about 10 telephones per 100 inhabitants of the 12 largest American cities and only 3.5 telephones per 100 residents in London. Transatlantic telephony was still decades away. See Scott Wallsten, "Returning to Victorian Competition, Ownership, and Regulation: An Empirical Study of European Telecommunications at the Turn of the Twentieth Century," *Journal of Economic History* 65.3 (2005): 693-722 and Arthur Kennelly, "Recent Developments in Radio," *Annals of the American Academy of Political and Social Science* 142 (1929): 8-16.

³² Webb, *Modern England*, 421.

and the Venezuela Crisis of 1895-1896.³³ The first and most obvious peculiarity in this sequence is its uneven temporal distribution. Four of these disputes occur within the first twelve years of mutual democracy, the fifth follows shortly thereafter, and the sixth does not occur until nearly four decades later. If these states were in fact learning, one would expect that the frequency of conflict would decrease over time, as it does. In other words, their interaction was still fluctuating between threats and retaliation, but these fluctuations were decreasing in frequency. Another step in the progression towards more cooperative relations is their mutual identification of democratic status. Owen describes how this mutual recognition throughout various strata of British society led to agitation against attacking the Union.³⁴ Although contemporary actors believed this to be reason enough to avoid war, it remains unclear *why* they thought this similar status should have made war unthinkable. This obscurity of intention does not negate the fact that the system's precision increased. A third indicator of these states learning to cooperate is the emergence of novel forms of conflict resolution. For example, San Juan Island was occupied by forces of both sides after the Pig War until the Washington Treaty was signed in 1871. Upon the conclusion of this treaty, which decreased tension across the Canadian-American border generally, the issue of possession of San Juan Island was referred to a commission chaired by Kaiser Wilhelm I.³⁵ Although third-party arbitration had been applied for centuries in other contexts, this was the first time the British and Americans opted for the method, and they honoured the Kaiser's ruling. Finally, by the Venezuelan Crisis, war between these two states would have been very surprising to almost all contemporary observers. This was so evident that this crisis has been described as "somewhat synthetic".³⁶ By 1901, the relationship started to take the form of a nascent pluralistic security community, because the British stopped devising war plans for an invasion of New England in this year.³⁷ Because trade between these states had developed so strongly by this point, one British statesman mused that a war

³³ The potential annexation of Texas vexed Britain considerably, especially after the Texans requested British support. This conflict alone, however, seemed not to present sufficient grounds for war. When considered with the conflicts about the Maine and Oregon borders and the Canadian rebellions that occurred simultaneously, the British were posed with linked issues that threatened to raise the level of antagonism to a justification for war, the avoidance of which was in no way guaranteed at the time. See Kenneth Bourne, The Balance of Power in North America (Berkeley: University of California Press, 1967): 75-169. It should also be clarified that the "Pig War", although it involved over 3000 troops on both sides, witnessed only one fatality: the pig.

³⁴ Owen, How Liberalism, 110-114.

³⁵ C. P. Stacey, "The Myth of the Unguarded Frontier 1815-1871," The American Historical Review 56.1 (1950): 18.

³⁶ Bourne, The Balance, 319.

³⁷ Ibid., 352.

between them would be “like breaking your neighbour’s window with doubloons”.³⁸ Not only had the frequency of the interdemocratic systems’ fluctuations in output decreased, but their amplitude decreased as well; the output became more precise.

The cybernetic and stag hunt models of simple learning presented here also provide a less rigid theoretical basis for the macro-historical learning process that Cederman identified.³⁹ In contrast to Cederman’s model, conflict is not necessary, but its occurrence can be accommodated. There is also no distinction between Cederman’s interest-based (rational) and rule-based (extrarational) learning. In this model, learning is a functional expression of the units’ endogenous perceptions of interest, even if they perceive this to include “virtue”. Moreover, Cederman followed Kant in speculating on the operation of “nature’s scheme” and the “regular progression” of history, which are superfluous to the dynamic described here. Finally, this theory is constructed without hypothesizing the existence of a security community, or indeed, of a collective security arrangement, as Cederman attempted elsewhere.⁴⁰ If one uses either of these concepts to explain the democratic peace, then Chan’s injunction that “One clear cut case of [belligerence between two democracies] would be sufficient to disconfirm the democratic peace proposition”,⁴¹ would be valid, because neither concept would be able to admit such a case of belligerence. This rigidity is clearly inconsistent with the notion of learning, in which knowledge is acquired over time and often by revising pathological rules that lead to systemic errors of output. Some sort of epiphany might be possible, in which all relevant information is instantaneously available and is immune to counter-argument, forgetfulness, or the introduction of new and false information, but this seems very unlikely. Thus, the cybernetic model allows democratic polities, individually and collectively, to crawl before they must walk, run, or fly.

Whereas at the beginning of the 19th century war was a possibility and a reality among the two states in question, it became ever less probable until the end of the century, when it was practically unthinkable. One study claiming to evaluate the causes of democratic peace attributes such decreasing appetite for conflict to “affinity”, which is measured by examining dyadic preferences.⁴² After finding that affinity was highly

³⁸ Blanche Dugdale, *Arthur James Balfour*, vol. 1 (New York: G.P. Putnam’s Sons, 1937): 226.

³⁹ Lars-Erik Cederman, “Back to Kant: Reinterpreting the Democratic Peace as a Macro-Historical Learning Process,” *American Political Science Review* 95.1 (2001): 15-31.

⁴⁰ Lars-Erik Cederman, “Modelling the Democratic Peace as a Kantian Selection Process,” *Journal of Conflict Resolution* 45.4 (2001): 470-502.

⁴¹ Steve Chan, “In Search of Democratic Peace: Problems and Promise,” *Mershon International Studies Review* 41.1 (1997): 71.

⁴² Gartzke, *Kant We All Just Get Along?*.

significant predictor of aversion to disputes, the author stated, “an explanation of preferences is beyond the scope of this research”.⁴³ Rather than identify a cause, such research merely adds another intervening variable, because one must then ask, “whence similar and compatible preferences, i.e. affinity?” The analysis above shows that, because of the institutional features of Great Britain and the United States, these countries individually and collectively had the characteristics of cybernetic systems that were able to *learn* compatibility from below. The interdemocratic cybernetic system, of which both were part, also produced less conflict in its output as a result.

The Transitional Phase

It was stated above that the cybernetic model starts to lose coherence around 1913. There are two reasons for this. First, the sensitivity of the cybernetic system is unlikely to hold in the context of a World War. The logic behind this point is analogous to the reason that democratic states must be secular: majority preferences can be overridden by perceived priorities that are insensitive to feedback, so while the system can still learn, it can only do so in the direction of these overriding priorities.⁴⁴

Second, Woodrow Wilson expressed a principle that made complex learning possible. In his speech requesting a declaration of war from Congress against Germany, he stated that:

Our object now, as then, is to vindicate the principles of peace and justice in the life of the world as against selfish and autocratic power and to set up among the really free and self-governed peoples of the world such a concert of purpose and of action as will henceforth ensure the observance of those principles. ... Self-governed nations do not fill their neighbor states with spies or set the course of intrigue to bring about some critical posture of affairs which will give them an opportunity to strike and make conquest. Such designs can be successfully worked out only under cover and where no one has the right to ask questions. ... A steadfast concert for peace can never be maintained except by a partnership of democratic nations. No autocratic government could be trusted to keep faith within it or observe its covenants.⁴⁵

This statement articulates a schema that could have served to direct a process of complex learning. It contains the idea about a unity of “free and self-governed peoples ... a concert for peace ... a partnership of democratic nations” and a sense of purpose for

⁴³ *Ibid.*, 20.

⁴⁴ This could also explain one of the borderline cases of interdemocratic war, namely, the Finno-Soviet War from 1939-1940. The argument is sometimes made that, because Finland was at war with the Soviet Union, and the Soviet Union was allied with democracies, democratic Finland was technically at war with the allied democracies. The temporary alliance of the Soviet Union with the Allies, however, was due to the overriding priority of resisting the Axis rather than a genuinely constructive relationship.

⁴⁵ Woodrow Wilson, *War Messages*, 65th Cong., 1st Sess. Senate Doc. No. 5, Serial No. 7264, Washington, D.C., 1917.

this unity. This allowed for complex learning to emerge. Although Kant had expressed a similar principle more than a century earlier, Wilson forced the idea into the effective political consciousness. Whereas Kant's proposition could have been dismissed as the musings of yet another Enlightenment philosopher, the gravity of Wilson's position as president of a potentially decisive participant in a world war made his expression immune to dismissal. Wilson's speech is, to this author's knowledge, the first official expression of such a goal in relation to mutual democracy with the intention of making it a project for the international system. Rather than a mere cybernetic system based on gains from cooperation or the avoidance of losses from conflict, democracy as a means to achieve peace was becoming the foundational principle of a complex adaptive system. In the terms of systems theory, Wilson's expression of this principle enabled downward causation; the static cybernetic system became able to change into a dynamic system with emergent properties.

Wilson's statement was not merely an artefact of political rhetoric; it saw application in the Charter of the League of Nations. Article 1 of the Covenant restricted membership to "fully self-governing State[s], Dominion[s], [and] Colon[ies]," although this concept was diluted in practice from Wilson's original formulation of "really free and self-governed peoples". Even the mandatories described in Art. 22 were obliged to guarantee basic political freedoms in the territories they were to administer. The "provision to secure and maintain freedom of communications and of transit and equitable treatment for the commerce of all Members of the League" contained in Art. 23 (e) almost gives one the impression that the authors were trying to devise precisely the type of system being described here.

Of course, depicting the system of interaction between democracies in the interwar period as a complex adaptive system is problematic, because it was neither effective nor adaptive. The League of Nations is notorious for its incoherence, impotence, and faulty design. Further, the interwar period is equally infamous for manifestly *uncooperative* economic policy. When economic catastrophe in the form of hyperinflation struck the democratic German economy in the early 1920s, the only democratic state with sufficient liquidity, the U.S., was slow to provide any assistance.⁴⁶ Beggar-thy-neighbour trade policies, a refusal to abandon the gold standard, and poor decisions on the part of private economic actors are axiomatic causes for the contagion

⁴⁶ Charles Maier, "The Two Postwar Eras and the Conditions for Stability in Twentieth Century Western Europe," *American Historical Review* 26.2 (1981): 29.

of economic misery in this period.⁴⁷ Indeed, it seems that a multi-state war was practically inevitable, and the lack of direct conflict between democracies in this period was more an accidental consequence of fortuitous political revolutions than a necessity. Rather than try to explain this period away or begin analysis only after it had passed, as is common in the democratic peace literature, the model presented here can integrate it.

Many aspects of the League Covenant were not conducive to peace. These would include the provision for continued de facto colonialism, the universalized collective security model, and the provisions for deep interference in members' sovereign affairs. Protectionist policies, such as the Smoot-Hawley Act, did indeed aggravate an already perilous economic situation. The initial design of the post-World War I system of interaction between democracies and many specific policies were nearly fatally pathological. In light of this faulty information, the Second World War can be considered to have been practically inevitable. The informational problem, familiar to computer systems analysts, was one of GIGO or Garbage In, Garbage Out. Wilson's speech made complex learning possible, but "not all lessons learned may be unambiguous or uncontested, or pleasant".⁴⁸ It is worth remembering that, when one refers to adaptation in biological evolution, this represents a small minority of mutations that have proven successful or at least benign. Most mutants, however, are condemned. The interdemocratic complex adaptive system survived a near-miss in the interwar period. The system that followed the Second World War, however, evidenced considerable beneficial learning and other factors that allowed a revised system to be established, in which a much more stable system of peaceful democratic interaction is nearly as inevitable as the war it succeeded.

The Complex Adaptive System of the Democratic Peace and Meta-Coordination

Conceiving the democratic peace as merely a zone of negative peace is least sensible in the period since the end of the Second World War. Whereas the interdemocratic peace process prior to the First World War can be characterized as a cybernetic system whose simple learning made coordination more efficient over time, and the interwar period has the traits of a complex adaptive system with several pathological design characteristics and learning patterns, the subsequent period is radically different. Although learning contributed to the improved design of many post-

⁴⁷ Peter Temin, "Transmission of the Great Depression," *Journal of Economic Perspectives* 7.2 (1993): 87-102.

⁴⁸ James Keeley, *Altering the Ground of a Culture of Argument*, Paper prepared for the 49th Annual Conference of the Western Social Science Association, Calgary, 14-11 April.

war institutions, so did hard and soft power. Further, whereas there were 14 democracies in 1913 by a generous measure, this number had nearly doubled by 1948 to 26, which doubled again to 52 by 1989.⁴⁹ In the last two decades, this figure has again more than doubled. Any organizational technology must have special features to accommodate growth on such a vast scale into a voluntary form of organization of such complexity. A complex adaptive system is no less dependent on communication facilities than a cybernetic one, and the last six decades have witnessed even more dramatic advances in this field than occurred in the 19th century. Finally, the complex interdependence among this expanding system of democracies has broadened and deepened, which must also be integrated into the theory. The following sections will define meta-coordination and catallaxy, examine some of the initial design features of the reformed complex adaptive system, provide a theoretical sketch of how and why the system's growth occurred as it did, and summarize some important advances in communications technology and complex interdependence that defined this period.

Meta-coordination/ Catallaxy

Whereas the initial democratic process of the 19th century tended toward greater gains through simple coordination, which were modeled as a stag hunt, the complex adaptive system since the Second World War has moved ever closer towards catallaxy. According to Hayek, catallaxy is the nearest English equivalent noun of the Greek verb *katallattein*, "which meant, significantly, not only 'to exchange' but also 'to admit into the community' and 'to change from enemy into friend'".⁵⁰ In its modern social scientific usage, the term refers to the idea that "men can live together in peace and mutually benefiting each other without agreeing on the particular aims which they severally pursue," and that "by substituting abstract rules of conduct for obligatory concrete ends ... it [is] possible to extend the order of peace beyond small groups pursuing the same ends, because it enabled each individual to gain from the skill and knowledge of others whom he need not even know and whose aims could be wholly different from his own".⁵¹ Klein usefully labels this form of coordination "meta-coordination" in contrast to the simple coordination described above.⁵² In contrast to the cybernetic system, in which the goal of interaction was to gain from coordinating activities or to avoid losses

⁴⁹ These figures were calculated by merely filtering the Polity IV Index for all polities achieving a score of 5 or greater in the years indicated. The figure for 1948 does, however, include West Germany, whose democratic constitution was made law in June of the following year.

⁵⁰ Friedrich von Hayek, "The Mirage of Social Justice," vol. 2 in *Law, Legislation and Liberty* (London: Routledge, 1973): 108.

⁵¹ *Ibid.* 109.

⁵² Klein, *Convention, Social Order*, 323-327.

caused by violent clashes of interest, the complex adaptive system's hypothesized goal is to create conditions for catallactic interaction, in which irremediable conflict of interest is systematically excluded. In Keohane's terms, the cybernetic variant of the system achieved ever greater levels of cooperation, while the catallactic system creates the conditions for ever greater levels of harmony.⁵³

Social-structural features of the post-war system.

That higher levels of interdemocratic trade can reduce conflict-proneness by up to a third has been shown elsewhere.⁵⁴ Considering the pathological retaliatory trade practices of the interwar years, one would expect interdemocratic trade to be strong and institutionalized in the post-war years, if the interdemocratic peace process is to be characterized as a complex adaptive system. The first illuminating statistic is that 13 of the original 23 members of the GATT were democracies. Although this represents only about 57% of the institution's membership, which does not sound impressive, only about 38% of all countries were democracies at that time, so democracies were proportionally overrepresented by a wide margin. Further, even after controlling for bipolar alliance membership, Morrow et. al. found that "democratic dyads always have higher trade flows".⁵⁵ It is also an article of conventional wisdom that open trade policies are conducive to development.⁵⁶ Mousseau has reported twice that, although democracies tend to agree on international issues, similar levels of development tend to correlate with agreement even more strongly.⁵⁷ To complete the virtuous circle, Lipset reported that "Perhaps the most widespread generalization linking political systems to other aspects of society has been that democracy is related to the state of economic development".⁵⁸ The causal story here is that democracies trade more, and trade is conducive to development. Democracies agree more, especially when they have similar levels of development, and they *do* tend to have higher levels of development. Whereas international trade decreased after the First World War and collapsed during the Great

⁵³ Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984): 51-52. Although harmony seems like a state without conflict, and this was indeed Keohane's meaning, one can expect considerable disagreement about which conditions must obtain, and who would benefit relatively more from these, for this end-stage to be reached.

⁵⁴ Oneal et. al., *Causes of Peace*, 380-381.

⁵⁵ James Morrow, Randolph Siverson, & Tressa Tabares, "The Political Determinants of International Trade: The Major Powers, 1907-90," *American Political Science Review* 92.3 (1998): 656.

⁵⁶ Anne Krueger, "Trade Policy and Economic Development: How We Learn," *American Economic Review* 87.1 (1997):1-22.

⁵⁷ Mousseau, *The Nexus* and Michael Mousseau, "Market Prosperity, Democratic Consolidation, and Democratic Peace," *Journal of Conflict Resolution* 44.4 (2000): 472-507.

⁵⁸ Seymour Lipset, "Some Social Requisites of Democracy," *American Political Science Review* 53.1 (1959): 75.

Depression, democracies learned to become active traders and reap rewards after the Second World War. With the establishment of the WTO in 1995, which, by most accounts, strengthened and deepened the trading rules of its predecessor, the GATT, this trend has amplified. The contrast with the pre-war economics could hardly be more pronounced.

The political and legal structures of the post-war order reflect a democratic and peaceful bias. The United Nations is the most universal, if not always the most effective, political institution that has existed in the post-war system. All major bodies within the UN use voting in various forms to make decisions.⁵⁹ Although only 17 of the 51 founding states were democratic, all of the 123 current democracies mentioned above but one are now UN members, which constitutes a 64% majority in that body for majoritarian societies.⁶⁰ One finds several democratic principles in a number of UN documents as well: 1) the primacy of the rule of law and freedom of communication in articles 7-13 of the Universal Declaration of Human Rights (UDHR), 2) the right to private property and employment in articles 17 and 23 of the UDHR, 3) the freedom of thought, conscience, and association and the right to governmental representation in articles 18-21 of the UDHR. These rights and freedoms are explicitly extended to women in the Convention on the Political Rights of Women. They are extended to societies in the Declaration on the Granting of Independence to Colonial Countries and Peoples. They are reaffirmed in the International Covenant on Economic, Social and Cultural Rights, etc. Although such documents are notoriously ineffectual, they might still serve the purpose of Wilson's speech cited above, in that they can provide a focal point around which expectations can converge and towards which learning can proceed.⁶¹

The UN is the most universal intergovernmental organization (IGO), but it is only one among many. The number of IGOs has increased even more dramatically than the number of democracies in the last six decades. There is also reason to believe that this coincident growth is not accidental. Rey and Barkdull find that intensity of democratic governance within states corresponds positively and well to the number of

⁵⁹ Indeed, the prevalence of voting as a decision-making procedure among international organizations generally is remarkable, and it is far from obvious that this *must* be the case, but this question is seldom addressed in the field.

⁶⁰ The exception is the Republic of China, also known as Taiwan, whose status as a sovereign state is a matter of dispute.

⁶¹ This process might constitute an international regime of democratic principles. The concept of focal points and convergent expectations is certainly indicative of regime theory. See Stephen Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," International Regimes, ed. Stephen Krasner (Ithaca: Cornell University Press, 1983): 1-21.

IGO memberships they hold.⁶² That interdemocratic participation in international organizations and institutions exerts an independent and negative influence on the propensity for dyadic conflict has also been repeatedly shown.⁶³ If this trend were not an effect of interdemocratic learning, neither the trend of higher participation of democracies in IGOs nor the reduced levels of conflict as a result of IGO participation should obtain.

The history of the field of communications since the Second World War is well-known. In addition to telephones and transatlantic telephony, much faster and cheaper methods of duplication, transportation, and the internet, this period witnessed some unusual developments. First is the prevalence of IGOs described above, which also help to satisfy states' demand for information about each other and the world.⁶⁴ IGOs are peculiar because they are a social-organizational rather than a physical technology. Second is the unprecedented pace of technological development. Although the types of content that can be communicated have not changed for millennia, the lifespan of the means to communicate that content is collapsing rapidly. For example, the use of the telex emerged and faded in this period, and it seems as if the lifespan of the fax is destined to be even shorter. Although transmitting information has never been as cheap nor as fast as it is now, the cost of adopting these new technologies at the rate of replacement could soon become a limiting rather than an enabling factor in the capacity of systemic learning. Even if this proves true, one could expect the prosperous democracies to have an advantage in their ability to adopt these new technologies, which would improve their individual and collective ability to adapt to their environment.

Learning to Grow, Growing to Learn, Joining the Club

It has been suggested that the observed process of the democratic peace is merely epiphenomenal to the Cold War.⁶⁵ That the process described here can be traced well back into the 19th century is one refutation of this claim. Nonetheless, the bipolarity and security dilemma of the Cold War certainly influenced the form of the post-war

⁶² Denis Rey & John Barkdull, "Why Do Some Democratic Countries Join More Intergovernmental Organizations Than Others?," *Social Science Quarterly* 86.2 (2005): 388.

⁶³ Hasenclever & Weiffen, *International Institutions*; Andreas Hasenclever, *The International Organization of the Democratic Peace: Towards a Functional Perspective* Paper prepared for the Second ECPR Conference, Marburg, 18 - 21 September 2003; Oneal et. al. *Causes of Peace*; Jon Pevehouse & Bruce Russett, "Democratic International Governmental Organizations Promote Peace," *International Organization* 60 (2006): 969-1000.

⁶⁴ Robert Keohane, "The Demand for International Regimes," *International Regimes*, ed. Stephen Krasner (Ithaca: Cornell University Press, 1983): 148-171.

⁶⁵ Joanne Gowa, *Ballots and Bullets: The Elusive Democratic Peace* (Princeton: Princeton University Press, 1999): 113.

democratic peace, but this does not preclude learning. The increased hard power of both superpowers immediately following the Second World War relative to their capabilities twenty five years prior presented many states with the dilemma of choosing sides. The democratic faction led by the United States would not have been a viable option had the US not possessed adequate power to withstand Soviet expansionism.

Democratic hard power has another implication. Although nearly all states retain some constant military capability, democracies tend to deploy theirs most effectively. Indeed, it has been shown repeatedly that democracies tend to win more of the wars they fight, and “selection effects” as well as wealth have been posited as possible explanatory variables for this phenomenon.⁶⁶ Since democracies tend to win most of the wars they fight, and since they do not fight each other, their superior hard power could almost be considered a definitional characteristic, almost as if democratic states constituted a species unto themselves. At the level of complex adaptive system, in which democracies are components of a greater unit rather than individuals within a species-like class, this must be considered an environmental adaptation.

Hard power considerations also influenced the institutional design of the post-war interdemocratic order. Whereas the US expressed the foundational principles of the League of Nations Covenant and then failed to ratify the document, it in many ways, including in terms of finance and a secure base of operations, acted as guarantor for the successor organization, the UN. In response to the Covenant’s failure, the European democracies largely managed their security relations atomistically. In the immediate post-war period, the European democracies used the leverage of their own weakness to bind the more powerful US into much closer economic and security relations than the latter would have preferred.⁶⁷ In reference to the relationship of will and power in cybernetic analysis, Deutsch defines power as “the ability of an ... organization to impose extrapolations or projections of their inner structure upon their environment ... In a sense, it is the ability to afford not to learn”.⁶⁸ In the context of the post-war complex adaptive system, this definition is only half true. While the US did have the power to ensure the adoption and persistence of certain characteristics of its inner

⁶⁶ David Lake, “Powerful Pacifists: Democratic States and War,” *American Political Science Review* 86.1 (1992): 24-37; David Lake, “Fair Fights?: Evaluating Theories of Democracy and Victory,” *International Security* 28.1 (2003): 154-167; Dan Reiter & Allan Stam, “Democracy, War Initiation, and Victory,” *American Political Science Review* 92.2 (1998): 384; Dan Reiter & Allan Stam, “Understanding Victory: Why Political Institutions Matter,” *International Security* 28.1 (2000): 168-179.

⁶⁷ John Ikenberry, *Liberal Order and Imperial Ambition* (Cambridge: Cambridge University Press, 2006): 21-107.

⁶⁸ Deutsch, *The Nerves*, 111.

structure,⁶⁹ such as democratic politics and capitalism, on its environment, this was not the only dynamic at play. Its environment in the form of the European democracies also functioned as a vacuum in which these structures were “sucked in” to fill the void.⁷⁰ The environment conditioned American policy as much as vice versa. When one compares the success of the post-war system to the disastrous instability of the interwar system, it is also reasonable to consider this an effect of reflection and complex learning.

Soft power, which refers to the operative force(s) “when one country gets other countries to *want* what it wants,” has also played a role in the growth and effectiveness of the post-war interdemocratic order as well.⁷¹ Starr notes that, of the governmental transitions from one polity type to another in the last three and a half decades, “there is a steady temporal trend towards greater democracy in the system”.⁷² He also tellingly notes the positive effect on this trend of “economic performance,” “communications technologies and by global psychological and cognitive interdependence”.⁷³ That is, democracy spreads because the societies facing governmental transitions want it, not because democracy is the only or the compelled option.⁷⁴ At the time he wrote his article, he was not even able to count the many transitions to democracy that formed the “third wave”.

To explain how this voluntary democratic contagion occurs in more detail, a threshold theory of collective behaviour is also instructive. Granovetter devised a model to describe the cumulative tendency of individuals in a group to choose the same option collectively when facing a binary decision.⁷⁵ He uses the analogy of a crowd of 100 individuals at a market square, where the tendency towards mob activity of all the individuals is normally distributed. That is, one individual needs no inspiration to throw a stone through a shop window, another will commit a similar act if he sees one other individual being disruptive, the third will vandalize if he sees two others already vandalizing, etc. Although he runs the model with different distributions of propensities

⁶⁹ That the US has also contributed to several non-democratic transitions, as in the cases of Chile, Iran, and Vietnam, is also beyond dispute. Such interventions could be the result either of the perceived priority of short-term over long-term interests or more cases of applied pathological heuristics.

⁷⁰ This environmental pull might be a necessary condition for the success of imposed transitions to democracy. The ongoing war in Iraq is indicative in this regard.

⁷¹ Joseph Nye, “Soft Power,” *Foreign Policy* 80 (1990): 166 (emphasis in original).

⁷² Harvey Starr, “Democratic Dominoes: Diffusion Approaches to the Spread of Democracy in the International System,” *Journal of Conflict Resolution* 35.2 (1991): 368.

⁷³ *Ibid.* 377, 379.

⁷⁴ In fact, he records a smaller but substantial quantity of transitions to less democratic forms of government in the same period, which shows that democracy is the preferred, not the only or imposed, alternative.

⁷⁵ Mark Granovetter, “Threshold Models of Collective Behavior,” *American Journal of Sociology* 83.6 (1978): 1420-1443.

in different contexts, what he is describing is the tendency to “jump on a (moving) bandwagon”. Because democracies tend to be more economically developed and have more peaceful relations, at least with each other, it is reasonable to hypothesize that these incentives lower the threshold to emulate them among those facing a transition.⁷⁶ That is, it gives the distribution of threshold levels a longer tail at the higher end of the scale. Opp has further described how the trajectory of socialization process tends in the direction of the practices and norms of higher status members of the society.⁷⁷ This and the relatively higher prosperity of democracies would explain why Starr observed that the more democracies there are in the system, the more states are likely to emulate them in subsequent transitions. This capacity for systemic growth and the relatively higher prosperity of democracies could be considered forms of adaptation to intrasystemic changes, as in the cases of the feathered creature and centipede above. The complex adaptive interdemocratic system is not only able to grow, which increases its ability to reproduce itself, it is also able to absorb this growth.⁷⁸

The complex adaptive system of the interdemocratic peace has demonstrated considerable learning since the interwar period, as is evidenced by improved institutional designs, the proliferation of interdemocratic institutions, and the relative prosperity of open democracies. This process has been reinforced by great advances in communications, adequate hard power to maintain the system’s integrity, and the soft power that has made it so attractive. Because it is so attractive, it has acquired and integrated many new democratic subsystems, the proliferation of which has outpaced the growth of alternative social organizational technologies.

Not Just Another Pretty Whig Interpretation of History⁷⁹

In general terms, a whig interpretation of history is one in which there is both an assumed teleological tendency towards greater degrees of “progress” and an

⁷⁶ It is important to note that there are limitations to this elegant reasoning. In a famous example from the literature on the evolution of norms, if one observes while walking down the street that many people unfurl their umbrellas at roughly the same time as it starts to rain, this does not necessarily indicate a preference for conformity or that each wants to emulate the next. Rather, they probably merely want to stay dry.

⁷⁷ Karl Dieter-Opp, “The Evolutionary Emergence of Norms,” *British Journal of Social Psychology* 21 (1982): 142.

⁷⁸ This ability to grow is likely to be relatively high, but not necessarily infinitely elastic. There may be a “demand for entry”, which may at times be higher or lower than the elasticity of the absorption capacity. The accession history of the EU might be instructive in this regard.

⁷⁹ This phrase and the type of critique to which this section is intended as a response, originates from Herbert Butterfield, *The Whig Interpretation of History* (<http://www.eliohs.unifi.it/testi/900/butterfield/>).

overestimation of the sensitivity of events to the wisdom of contemporary agents.⁸⁰ These elements might seem contradictory, and that is, in fact, one of the problems with such an approach. The theory presented here is not of this kind for four reasons.

First, the theory here, as it relies on Deutsch's social cybernetics, Hayek's catallaxy, and Gell-Mann's model of complex adaptive systems, describes a system with self-organizing and self-directing properties. No individual in a democratic subsystem nor any democratic state in an international system need be conscious of the functions to which their actions contribute. Thus, this theory is not strictly voluntarist. In contrast, a whig version would emphasize the capacity of historical agents to model their circumstances according to their own intelligence. In fact, the word "whig" derives etymologically from the Scottish Gaelic verb *whig* which means "to drive".⁸¹

Second, this theory does not assume the type of intelligence that would be required for a voluntarist interpretation to obtain. Voluntarism, much like simple rational actor models, would require agents to possess perfect information about the past, the present, and the consequences of their actions. They would also require innate wisdom or superhuman abilities to calculate the outcomes of all interactions in the system. The theory presented here does require facilities for memory and learning, but it also admits miscalculations and pathological decisions. This relates to the third reason, which is that a voluntarist intelligence would have to be either centralized or remarkably consensual. The intelligence required by this theory, on the part of individuals and interacting subsystems, is more distributed and similar in operation to swarm intelligence, which has been defined as "a property of systems of ... agents of limited individual capabilities exhibiting collectively intelligent behaviour".⁸²

Third, this theory is not teleological. Liberal teleological theories, based often on Hegelian philosophy, have achieved surprising acceptability lately.⁸³ Whereas these theories assign a necessary trajectory to history, the one observed here is contingent. Further, this theory assumes no end state. Rather, any direction implied here is

⁸⁰ Butterfield does not explicitly define this term in his essay. Rather, he writes in the preface that it merely deals with "what I conceive to be the accepted meaning of the phrase. At least it covers all that is ordinarily understood by the words". The image presented in this text is a condensed version the author's interpretation of Butterfield.

⁸¹ Compact Oxford English Dictionary of Current English, 3rd ed., eds. Catherine Soanes & Sara Hawker (Oxford: Oxford University Press, 2005): 1183.

⁸² Tony White & Bernard Pagurek, "Towards Multi-Swarm Problem Solving in Networks," International Conference on Multi-Agent Systems 3 (1998): 333.

⁸³ The two most famous examples are Francis Fukuyama, "The End of History," The National Interest 16 (1989) and Alexander Wendt, "Why a World State is Inevitable," European Journal of International Relations 9.4 (2003): 491-542.

functional rather than inevitable. That is why the adjective “pathological” has been used to describe entities and actions that deter from the function instead of “bad” or “false”, which would presume some extra-systemic capacity for ontological or moral objectivity.

Conclusion

The impetus for this paper has been the unsatisfactory theorization of the interdemocratic peace. At least part of this lack of causal theory can be attributed to the fact that the interdemocratic peace is a spontaneous form of social order, and conventional theories of international relations are ill-suited to treat such phenomena. For this reason, two models from outside the conventional IR discourse have been applied that are better equipped to account for such phenomena: cybernetics and complex adaptive systems.

The main argument above is that the interdemocratic peace began in 1836 as a social cybernetic system composed of cybernetic subsystems in the form of individual democracies. Population growth and communications innovations improved the systems’ ability to learn simply, which is evidenced by decreasing levels of actual and potential conflict over time. Although the overriding priorities of the world wars made the system insensitive to feedback, which means the models’ operation was suspended in these periods, a principle was expressed in 1917 and was institutionalized after the war, which made complex learning possible and caused a systemic transition from a cybernetic to a complex adaptive social system. The system’s integrity was nearly fatally corrupted by pathological information and practices in the interwar period, but it managed to learn complexly and take on an improved structure after the Second World War.

Democratic and market principles became heavily institutionalized in the post-war period, so the interdemocratic peace cannot be considered merely a zone of negative peace in this context. The system featured the adaptations of relatively preponderant hard power and wealth, which allowed it to maintain its integrity, absorb new subsystems, and perhaps even constitute a systemic selection pressure in its own favour. The system’s soft power reduced the threshold for incoming states to bandwagon, which provides the ‘demand-side’ explanation for its growth. Whereas the cybernetic predecessor achieved more reliable simple coordination throughout its history, the complex adaptive system moved closer towards catallaxy/meta-coordination.

Although this thesis is indicative, it is not complete. This form of spontaneous social order might be better treated with other means, such as a more explicit and rigid

application of insights from biological evolution than their metaphorical application in this paper. Because the interdemocratic peace is an $N=1$ phenomenon, inferential statistics were not applied here to test the robustness of the model, but they might be valuable to tests claims within the model. Further, constructivist research could add greater depth to the claims about social learning made here. The interdemocratic peace, especially after Wilson's explicit articulation of its potential, may constitute a meme, which, if its evolution were investigated, could present a more profound image of complex learning than was presented above. Finally, to the extent that the post-war interdemocratic peace has deeper and broader characteristics than merely the absence of interdemocratic war, further research would be required to assess the scope and effectiveness of these characteristics.