LOCATING LEGITIMACY IN TERRITORIAL SPACE

Master of Arts in Law and Diplomacy Thesis

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May 2004

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Abstract

When human governing systems are compared to those of the natural world, the natural world appears very stable by comparison. The rise and fall of civilizations, empires and states is at the same time accompanied by unmovable forests, oceans and rivers in which vast numbers of living things interact and maintain themselves without any guidance or direction from a central authority. When looked at closely, natural systems are in fact very complex entities with many different species interacting that are constantly changing and adapting, but somehow, the system as a whole remains stable. What is it about the dynamics of nature that allows it to look like a static governing system while human dynamics produce unstable governing systems? Is there some natural characteristic that results in nature's stable systems that can be replicated to better create more stable human governing systems? This paper proposes the idea that, like natural systems, human governance systems can be defined as Complex Adaptive Systems, and that the key feature distinguishing human rule making from nature is legitimacy. Legitimacy itself will be shown as an emergent property of the human governance system and it is generated through the physical interaction of people in geographic space.

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Introduction

World order has two meanings. The first definition is broad and describes how the Earth and its natural processes form an orderly system. Examples of nature's systems include forests, rivers, oceans, and atmospheric conditions in which each of the individual parts - plants, animals and geologic formations - interact using the laws of physics and chemistry to form stable orders. The rules governing natural systems are non-negotiable and cannot be changed. The only possibility for change in living organisms is evolution through adaptation to the rules that are already given.

The second definition of world order relates to our anthropocentric view of our life on Earth and how human beings organize themselves to create an orderly system. Human governing systems range from families to tribes, and from city governments to states to global institutions such as the World Trade Organization. The key difference between natural world order and human world order is that while nature's rules are given, humans are both the creators and followers of human rules. Nature's rules are unchanging whereas human rules can be anything imaginable.

Actually, human rules do have limits. They are bound by legitimacy. At any given time and place, there are two rule sets that are in practice. The first is the set of background cultural rules that are passed down to each generation that are not explicitly written that distinguish one social grouping from another. This can include distinctions of language, religion, food and clothing styles. The second set of rules are those created by certain people granted authority by a society to make additional rules that may be needed by the

society. In both cases, the rules still emanate from a human source, which means that the validity of any specific human rule can be questioned. This process of questioning the validity of a rule is answered by legitimacy. If a rule is deemed legitimate by the society, it remains; if it's illegitimate, it may disappear or be replaced by another rule. The focus here will be on how legitimacy affects the second rule making system relating to human governance, but the importance of the first set can never be ignored as it has a large impact on the eventual determination of legitimacy.

In focusing on human governance, there is another property related to those who follow any given set of rules; they always retain the choice of either accepting a particular human rule or not. This acceptance (or rejection) of a rule requires action (or inaction) somewhere. As the only way an individual can observe whether others are obeying a rule is through repeated interaction with others, legitimacy is a characteristic arising from territorial interaction. It must take place in a spatial location.

Legitimacy is the key concept in how followers decide the status of any rule. Therefore the effectiveness and stability of any human created rule system will rise or fall based on its level of legitimacy. If people determine that a particular governing system is illegitimate, it often leads to uncertainty and change that may be accompanied by violence. The task for all leaders of a governing system is how to ensure continued legitimacy that results in stability.

When human governing systems are compared to those of the natural world, the natural world appears very stable by comparison. The rise and fall of civilizations, empires and states is at the same time accompanied by unmovable forests, oceans and rivers in which vast numbers of living things interact and maintain themselves without any guidance or direction from a central authority. When looked at closely, natural systems are in fact very complex entities with many different species interacting that are constantly changing and adapting, but somehow, the system as a whole remains stable. What is it about the dynamics of nature that allows it to look like a static governing system while human dynamics produce unstable governing systems? Is there some natural characteristic that results in nature's stable systems that can be replicated to better create more stable human governing systems?

In answering this question, it is necessary to focus on the key difference between natural and human governance systems – legitimacy. This paper will use the current findings of biological and physical sciences that demonstrate that through the interaction of the basic parts of a system with its neighboring parts that a stable systemic structure can emerge without central guidance. In the same way, it will be shown that direct human interaction in a face-to-face manner is not only what forms the basis of legitimacy itself, but is also the key natural characteristic in which it is possible for a stable human governance system to emerge. Legitimacy is determined in geographic space and its maintenance depends on human interaction.

The structure of the paper is as follows: First will be a discussion of natural systems and how simple rules of local interaction create macro system patterns, known as a Complex Adaptive Systems (CAS). The second section will be a discussion of how human rule systems are also CAS. The third section will discuss the theoretical foundations of legitimacy and explain how legitimacy can be described as a process requiring interaction in a locality. The fourth section will consist of the results of a computer program created to model the conditions in which a stable legitimacy might emerge.

Complex Adaptive Systems (CAS)

In looking at any type of systemic behavior, there are generally three alternative ways of characterizing it. George Modelski has labeled them as Ordered (Equilibrium) systems, Chaotic systems and Complex Adaptive Systems.[1]

Ordered systems are largely based on cause and effect and are deterministic in character. They follow fixed patterns and once set in motion these systems do not change. An example of an ordered system would be the planetary system, where Newton's laws of motion and gravity describe the movement of planets around the sun. Using these laws it is possible to predict in the future where each planet will be at some future date based on its current condition. Within the human realm, Kenneth Waltz's Balance of Power theory would also fall within this systemic view. It is deterministic in that it is the distribution of power within the international state system that defines how the actors

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[1] George Modelski, "Evolutionary Paradigm for Global Politics," *International Studies Quarterly* 84, no. 3, Special Issue: Evolutionary Paradigms in the Social Sciences (Sep., 1996): 331-2. I prefer the use of the term Complex Adaptive System over his Complex System term.

(states) will behave. It carries with it assumptions that the actors themselves are rational

with a fixed set of characteristics, but that no matter how they act, the system will

maintain equilibrium.[2] For ordered systems, the key distinction is that from a given set of

initial conditions, the future behavior of the system as a whole can be predicted.

Chaotic systems are disordered and unpredictable. Use of chaos in this sense does not

mean random – it means that given an initial state of a system it is impossible to predict

its state in the future as the system is extremely sensitive to minute changes in initial

conditions. The classic example in the natural world is the weather. While it is possible to

know the rules that determine cloud formation, wind and rain, because of the interaction

of these elements and the impossibility of obtaining perfect measurements, the weather

will always remain unpredictable. It is not random in that often times it is possible to

guess the weather in the next hour or day based on its conditions now or guess the

likelihood of it being cold or warm based on the season. However, small changes in the

interaction of the various elements that make up the weather system can dramatically

alter it at any time, playing havoc with any prediction. An example of a human chaotic

system is the stock market. It, like the weather, is unpredictable. While certain trends may

be discernible, it is impossible to know the exact price of every stock on this date next

year.

Complex Adaptive Systems (CAS) fall between the Ordered and Chaotic systems – they

are not entirely ordered or entirely chaotic, but contain elements of both. In this type of

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[2] Kenneth Waltz, *Theory of International Politics,* (New York, NY: Newbery Award Records, Inc; 1979), 116-28.

system, order can emerge, but not through a deterministic set of laws. The emergence of order arises from the interaction of the individual parts of the system as they act based on information in their proximate environment. There is no controller of this order and the system can organize itself as it constantly adapts to changes in the environment that results from a continuous feedback cycle between each part and the whole system. The exact manner in which order emerges and its duration is unpredictable, even when the parts are governed by very simple rules of behavior.

CAS in the natural world can be seen in an ant colony trying to find food. A foraging ant follows a simple survival rule: follow the strongest pheromone trail in the search for food. As the first ants wander out from the colony, their direction is completely random while they emit their own pheromone trail. However, upon discovery of a food source, a particular ant begins to return to the colony. On his return, he meets another ant, who, upon interacting, notices the food and follows the first ant's trail to the food source. Other ants walking randomly either bump into the first ant returning from the food source or detect a slightly stronger pheromone trail at the point where the second ant began his trek toward the food. The more ants that discover the pheromone trail or bump into the first ant, the stronger the pheromone gets, attracting more ants. In this way, each ant following a simple rule can develop into an ordered line directly to a food source in order to feed the colony as a whole without any authority guiding the way. The ants are self-organizing.[3]

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[3] Deborah Gordon, *Ants at Work: how an insect society is organized*, (New York, NY: W. The Free Press, 1999), 37, 48-9,107-11, 117-19, 154-56, 163-64.

For human beings, this same CAS process can be seen in traffic jams. Each individual has his own driving technique – how fast he drives, when he chooses to change lanes, and how quickly he brakes upon seeing red taillights. In this case, everyone has simple rules for speed, lane changing and braking reaction time. There is no central authority telling anyone how to react at any given time. At the same time, each individual reacting to the drivers in their immediate surroundings determines the entire traffic flow pattern. Models of traffic flows as done through the use of computer programs by Mitchel Resnik and direct observation of traffic patterns on the German autobahn by Treiber and Helbing show that the combination of the space between cars combined with variable speeds can generate an emergent order: a traffic jam.[4] Barring an accident, traffic jams can appear spontaneously on sections of road with no discernible reason and not under the control of any one driver; it is the end result of many individual decisions made based on each person's reactions to their local environment. In addition, traffic jams, when looked at from the system level, have their own behavior that is unpredictable based on looking solely at individual action – the traffic jam itself moves backward even though the cars move forward. As one car frees itself from the front of the jam, another car joins at the back of the jam, so the jam gets larger at the back as it gets smaller at the front. All this is to illustrate that CAS can generate order based on the local interaction of its parts that is unpredictable, even if we know what all the parts can do.

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[4] Mitchel Resnick, *Turtles, Termites, and Traffic Jams: Explorations in Massively Parallel Microworlds,* (Cambridge, MA: MIT Press, 1994), 68-74; Martin Treiber and Dirk Helbing, "Microsimulations of Freeway Traffic Including Control Measures*,*" Institute for Economics and Traffic, Technische Universität Dresden, October 4, 2002 (accessed May 3, 2004); available from http://arxiv.org/find/cond-mat/1/au:+Helbing/0/1/0/all/0/1.

In describing a system, there is not necessarily a right or wrong method to describing it – there only needs to be clarity about how the system is being looked at. For example, a deterministic Balance of Power theory may exactly describe a stable international system if states do in fact contain the defined set of rational characteristics they are stated to have. A CAS view of the Balance of Power Theory would look at a stable order as an emergent property based on the interaction of states and be able to describe how the system itself may change from a stable system to a chaotic one and vice versa. The Ordered system approach describes the properties while the system is ordered and stable, the CAS approach describes the properties of the system in transition. There is no conflict between the views, just a more complete picture when both are used together.

Human Governance and CAS

Humans follow many rule systems. In addition to the physical laws that we must obey (eat, sleep, gravity), there are cultural norms and institutions that have been created to establish rules. Educational honor codes, the scientific method, government laws at various levels (local to countrywide) and international organizations all establish a set of rules to which a defined set of individuals generally follow in the interest of establishing a set of common standards that meet personal goals, ensure group harmony, promote ideological beliefs or are simply a result of habit.

Rules are also created that operate at different scales delimited by the size of a particular population and the territory over which those rules apply. An individual from Boston is subject to the rules of the city of Boston, the state of Massachusetts and the government

of the United States. In addition, this individual may also be subject to other rules such as corporate regulations at their place of work, cultural norms based on their ethnic heritage, or religious rules. This multiplicity of rules comes from different institutions whose scale represents the number of individuals who follow those rules and where those rules must be followed.

From the individual's perspective, s/he can choose to follow or disobey any of the rules imposed on them, regardless of the scale level that imposed those rules. Often, conflicting rules from different scales *force* choices to be made by individuals as to which rules they will follow. While an individual's religion may say that abortion is not correct, the United States government says this action is correct. It is a combination of the quantity of rules and their potential conflicts where the question of legitimacy arises. Which rule is to be followed, or in other words, has the highest level of legitimacy? How does one choose between them?

For the purposes of this paper, the concept of legitimacy is seen as an emergent stability characteristic of the human rule making system – but it is never a constant. Even without a clear definition of legitimacy (at this point in the paper), it is possible to see that human rule making systems can grow, stabilize for various lengths of time and decline, to then be replaced by other rule systems, sometimes after a particularly chaotic period. This parallels legitimacy – there are times when it is high and rule-making systems grow and stabilize, and other times when it is low leading to decline and chaos. Based on the discussion up to this point, human governing systems are neither completely constant nor

completely chaotic, but somewhere in between. This would define them as Complex

Adaptive Systems.

As mentioned in the introduction, human perception of nature is that of a stable system.

The forests and their plants and animals exist consistently for centuries and appear static.

The reality, however, is that between the plants and animals is an intense competition.

Some species grow and thrive, other species decline and die out; some introduced species

prosper while others can never take root. Every plant and animal is constantly adapting to

its environment – a tree creates a poison so that insects do not eat it, and the insects

develop a way to eat the poison without harm. While these dynamic changes take place,

the forest system still remains. The forest ecosystem is also a CAS, but it does not

suddenly destroy itself to be replaced with a desert.

Similar dynamic changes for humans result in entirely new systems being created and

destroyed. The difference, as mentioned previously, between natural and human systems

is that humans create the rules of both their individual behavior as well as the behavior of

their governing systems. Therefore, determining legitimacy is critical to understanding

whether a human governing system will remain stable.

Legitimacy

In looking at human governance as a CAS, it is now necessary to show precisely how

legitimacy accounts for the change in the system. From the systemic level of the

governing system to the individual people composing the parts of the system, the concept

of legitimacy itself must be understood. What are the requirements for a governing system to be deemed legitimate?

Theories of legitimacy have been elaborated as early as Thucydides' Melian Dialogue "while the strong do what they can and the weak suffer what they must" and include other well-known thinkers such as Plato, Aristotle, Machiavelli, Locke, Rousseau, Marx and Weber. These thinkers were concerned with legitimacy as it relates to political power structures and its relationship to the people subject to those structures.

From this perspective, Morris Zelditch, Jr has described the concept of legitimacy falling under two main perspectives: Consensus Theories and Conflict Theories. [5] Consensus Theories of legitimacy posit that legitimacy requires the voluntary consent of people. Governing systems are legitimate if the norms and values of the people are practiced by the ruling elite in their governance. Should the rulers deviate from this commitment, people can withdraw their consent and thus the legitimacy of the rulers is withdrawn.

Conflict Theories do not have the rulers and the ruled sharing the same norms and values. The premise is that these two groups each have different interests that they are pursuing which lead to conflict, and the resolution of this conflict is based on power. While power in itself is seen as inherently unstable and insufficient to make a set of rules "right", there is the necessity to create ideologies, myths and rituals in order to legitimate the rules. In this view, legitimacy is simply an instrument of those who wield power.

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[5] Morris Zelditch, Jr, "Theories of Legitimacy," in *The Psychology of Legitimacy: emerging perspectives on ideology, justice and intergroup relations,*eds. John T. Jost and Brenda Major (Cambridge, UK: Cambridge University Press, 2001), 42-3.

There are other theories of legitimacy that contain a mix between the two.[6] Weber, for

example, indicates that individuals can 'validate' that norms are being adhered to but at

the same time this validation may not be necessary at all times. The effect of group

dynamics on an individual and the fact that other people appear to accept the current rules

(whether by conscious choice or force of habit is unknowable by the individual) can lead

to the legitimacy of the order.[7] Both adherence to norms and unconscious behavior can

lead to acceptance of a governing system.

In all of the above theories, there is still one element that is undisputed – consent of some

form is required. For the Consensus Theories, this is self-evident. For the Conflict

theories, the use of power requires consent. As populations get larger, a ruler will need a

larger administration, police and military to enforce the law. But as more people are

needed to enforce the law, the riskier it is for a ruler because the leaders of the

administration, police or military arms of the ruler could choose to seek power for

themselves. It is necessary to have some non-instrumental reason (ideology, myth) to

ensure that they do not revolt. To actually use power, consent is needed at this level.

The real question is not whether consent forms the basis of legitimacy, but where in

society consent must take place. Is it among the individual citizens, or is it among the

individuals who are within the ruling apparatus of power? This question will not be

answered here as it is irrelevant to the support of the main point – that consent forms the

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[6] Zelditch, Jr,, "Theories of Legitimacy," 43-47.
[7] Max Weber, *Economy and Society,* eds. Guenther Roth and Claus Wittich (New York: Bedminster Press, 1968), 212-215.

basis of legitimacy. However, it is not an unimportant question, and its answer may depend on the type of society one is looking at (democratic, authoritarian) and the power distribution between societal groups. Regardless of where the answer falls, the emergence of legitimacy still requires face-to-face consent, as will be seen below.

From the psychological perspective, legitimacy exists at two levels – the individual and the group level. At the core of the psychological theories is where the perception of injustice by people originates. It is these feelings of injustice that lead to the questioning of legitimacy and the re-evaluation of consent by individuals. Jost and Major, in their survey of relevant psychology studies, indicate that in daily social interaction, individuals are required by others to justify their actions and demonstrate that it is legitimate. Individual legitimacy is seen as central to impression management and validating an individual's sense of self-worth.[8] At the group level, theories of relative deprivation, social identity and equity, are the processes working there. People can become discontent with their situation when they see themselves in a state of deprivation in relation to others while at the same time, social identity theory claims that members of low status groups will perceive their status as legitimate if there is little likelihood that the status differences between groups doesn't change. Equity theory points out that people are willing to accept negative outcomes as long as there are reasonable explanations for the inequity.[9] As a result, legitimacy itself can be used in a positive or negative way as justification for good or evil acts.

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[8] John T. Jost and Brenda Major, "Emerging Perspectives on the Psychology of Legitimacy," in *The Psychology of Legitimacy: emerging perspectives on ideology, justice and intergroup relations,*eds. John T. Jost and Brenda Major (Cambridge, UK: Cambridge University Press, 2001), 5.
[9] Jost and Major, "Emerging Perspectives on the Psychology of Legitimacy," 8-9.

All of this applies when looking at human governance. For example, the stability that legitimacy generates is its ability to unite both those who are winners and those who are losers as the result of a decision or rule. For example, in a US presidential election or Congressional law vote, the people backing the losing candidate or the defeated law don't suddenly stop paying their taxes. They accept the loss because of a combination of views that the process of the decision was fair as everyone else accepts the results (individual) even if the outcome results in an individual being worse off because s/he is unable to affect any change in the circumstances (social identity theory) and s/he believe that they are no worse off than others (relative deprivation).

In addition, as consent forms the basis of legitimacy, the population as a whole must accept not just the processes of rule making, but the individuals and institutions charged with making and carrying out the rules as well. History shows that despite many years of legitimate decision-making by various royal families or political groups (the long line of Chinese Dynasties that came and went, the Romanovs and the Communist Party in Russia) that legitimacy can be lost. Pippa Norris et al defines a type of legitimacy in her analysis distinguishing between five different types of support for a political system. These five categories are support for: the Political Community, Regime Principles, Regime Performance, Regime Institutions and Political Actors.[10] While individuals do have differing views of each of these components of the governing system, some combination of consent for all of these factors will add up to one choice of action for

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[10] Pippa Norris, "Introduction: The Growth of Critical Citizens," in *Critical Citizens: Global support for democratic governance,* ed Pippa Norris (New York: Oxford University Press, 1999), 9-13.

every individual – whether to follow the rules issued or not. An individual's choice to

acquiesce without protest is equivalent to the consent needed for legitimacy.

Legitimacy, whether derived from the individual level or the group level, or as a

condition for the stability of human governance, requires consent. While much of these

theories describe the ongoing maintenance of legitimacy, it is not a permanent condition.

Therefore, in describing the nature of legitimacy, the factor most likely responsible for

change must be the idea of consent. How, then, is consent changed?

Consent

It is common to define the legitimacy of a government's authority as being derived from

the consent of the governed. This notion is based on John Locke's social contract theory

that implies that by giving one's consent, a government then has the obligation to rule

justly and those who are governed are obliged to obey. 'Consent of the governed' has

since become a slogan representing modern democratic governance, as opposed to

authoritarian governance in which there is no freedom, and therefore, no real consent can

be given to that type of government.

Consent for this paper, challenges this basic premise. There is no reason to believe that

by granting one's consent that any obligation necessarily follows on the part of the

governed. In granting one's approval for a rule-making endeavor, it is done with the idea

that the obligation to rule justly rests on the shoulders of those who need the consent and

are granted the ability to wield collective power. The obligation is not on the individual

granting the consent because the government has coercive means at its disposal to force

obedience. A voter electing a member of Congress means that the person taking office

has the obligation to act in a way consistent with that voter's expectation or risk losing re-

election. The voter is free to change his/her support of any candidate, as well as the

system they represent if it does not act as intended. The voter is only obligated to the

governing system if it acts as expected and s/he is prepared to risk the consequences for

disobedience.

The difficulty with the entire governance arrangement is two-fold: that nothing remains

constant and, as a result, that it is not realistic to continually grant active consent to all

rules. For example, even people who are born into democratic systems did not consent to

democracy; they were socialized within that system, and through pure chance happened

to be born in some locality where democracy is practiced. At the same time, the

governance that was consented to by the founders of a particular country's democracy

has evolved into something different today. This has been accepted by the people of

today without the need for new revisionist "founders" to re-invent the system for every

generation. Obligation alone cannot account for how the system continually adapts.

For this reason, consent must be defined more broadly as simple acquiescence. This

implies that people everywhere, whether they live in authoritarian or democratic states

have the ability to consent. As the discussion on the psychology of legitimacy above

showed, even when social processes are at work, it is an individual who makes the final

justification of whether legitimacy exists or not. At the same time, because legitimacy

can be either negative or positive, how is it possible to know if real consent exists?

P.H Partridge in his book Consent and Consensus, provides a useful discussion of this

idea. He shows seven different forms of consent that exist on a "grade" from weak to

strong consent: (1) Consent based on acquiescence due to duress; (2) Consent through

powerful people controlling access to all relevant information; (3) Consent due to

apathy/habit; (4) Consent based on tradition/normative behavior; (5) Consent through

socialization of codes of 'right' conduct; (6) Consent as granting express permission to

others; (7) Direct consent and approval of action. [11] Partridge's observation that consent

is not static, but exists on a continuum from weak to strong, demonstrates that consent is

a variable quantity, not a constant. The strength or weakness of consent affects the

resulting level of legitimacy.

In looking at Partridge's seven examples above, these can be further classified into two

different categories. The first is that weak consent (1) and (2) are due to the actions of

those in positions of power through the use of force or influence. Ted Gurr, based on

summaries of other research, shows that the use of force tends to displace levels of

aggression and violence to a later time while the effectiveness of coercion is dependent

on the level of police/military loyalty to the regime.[12] Feieraberd et al in a cross-national

study of 73 countries also correlates the level of coercive violence used by a government

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[11] P.H. Partridge, *Consent and Consensus* (New York: Praeger Publishers, 1971), 31-36.
[12] Ted Robert Gurr, *Why Men Rebel* (Princeton, NJ: Princeton University Press, 1970), 240-54.

to the incidence of political instability.[13] These studies show that the use of coercion leads to initial weak consent, but results in the erosion of legitimacy as demonstrated by either disloyalty of the armed forces or general domestic instability.

The second category for the remainder of stronger consent grades is a result of decisions made by the individual either through personality preferences, learning or interests. This second category of consent results in a stronger legitimacy. The level of consent in this category is primarily determined through interaction in physical space.

Interaction and Physical Space

Each individual has a set of filters in which any rule is processed. This filter includes culture, experience, personality, interest and many other factors. Individual consent is the application of this filter on the rules to be judged.

Why follow any rule established by someone else? The idea is that there are gains for all if everybody cooperates. How, then, do you know if everyone else is cooperating? The answer is through interaction.

Interaction is the only method of evaluating whether others are cooperating and that you are not the only dupe following the rule. It is a way to avoid the free-rider problem, and at the same time an indicator of legitimacy that feeds on itself. If the cost of compliance

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[13] Ivo K. Feierabend, Betty Nesvold and Rosalind L. Feierabend, "Political Coerciveness and Turmoil: A Cross-National Inquiry," *Law & Society Review* 5, no. 1 (Aug., 1970): 113-15.

with a rule is too great for the few who are supporting a larger and larger pool of free-

riders, the rule will be disregarded.

More specifically, this interaction is primarily physical interaction. In the age of modern

communication, the internet and mass media this seems counter-intuitive. Haven't we

moved to an era where one's physical location can be overcome where the "link between

social situation and physical setting is broken,"[14] Where legitimacy is concerned, the

answer to this is no for the following reasons:

- Random encounters are limited – global communication is directed and interest
  oriented. It does not provide enough range in contacts. Technology allows greater
  contact with greater numbers of like-minded people creating fragmentation of
  ideas. There is also a large gap between the active participants and the passive
  participants. Random local action is all-inclusive.

- Modern mass communication is only a one-way flow – it serves only as an
  information source. This information is then filtered locally through interaction.
  The number of interpretations to the same newspaper article, television broadcast
  or email is the same as the number of local communities who see these things.

- No major human dispute has been resolved exclusively using books, media or
  computers. It requires the direct interaction of people.

- Experiencing an event through the media is indirect. It is not the same as being
  there. The media itself shapes the view of the event for the audience. Typical
  example is a sporting event. If it were the same experience, why does anyone go

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[14] David Held, *Democracy and the Global Order: From the Modern State to Cosmopolitan Governance*
(Stanford, CA: Stanford University Press, 1995), 122.

see it in person? The multiple inputs, the people, expressions, emotions, activities

all add to the whole personal experience that is beyond just the TV experience.

The richness of communicating in person with other individuals or groups allows for

non-verbal communication to take place (facial expressions, body language) and unique

shared experience (similar climate conditions, smells, sounds, tastes) that makes modern

day communication methods look very hollow by comparison.

In the Muscovici and Doise book, *Conflict & Consensus,* the authors present an overview

of the process of collective decision-making that shows how the process of interacting at

the group level has more impact on reaching lasting consent than one-to-many type

communications such as advertising or lectures.[15] In addition, they point out the

difference between active and passive communication, where active communication

includes direct dialogue with others that results in changes of opinion and behavior. It is

this process of exchange in an active dialogue which leads to their hypothesis, that group

dialogue situations produce consent, and that this consent can change people's mind in

such a way where they are willing to make decisions to do things they may have been

opposed to and then actually follow through on their commitments. They define this as

the tendency for groups to polarize opinion rather than compromise positions. They back

this position through their own experiments and those done by others.[16]

In deciding whether a rule is worth following, direct interaction with people in a locality

is the only way to know if there is consent. Hearing that other people in other areas are

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[15] Serge Moscovici and Willem Doise, *Conflict & Consensus: A general theory of collective decisions* (London: Sage Publications, 1994), 36-46.
[16] Moscovici and Doise, *Conflict & Consensus: A general theory of collective decisions, 79-81.*

not following a particular rule does not change its practice until the people in the locality begin to change its practice. Modern technology helps speed up information availability to individuals, but each piece of information received needs to be tested with the reality present in one's locality. The legitimacy of any rule is subject to its operation within a space where people interact regularly both randomly and through dialogue.

Modeling Legitimacy

The following is a brief summary of the thesis:

1. Human governance is a complex adaptive system.

2. A feature of CAS is that random interaction of individuals following simple rules can result in emergent patterns of the whole population.

3. Human governance requires legitimacy for its operation.

4. Legitimacy in human governance is territorially based.

Using the above criteria it now possible to model legitimacy on the computer using Agent Based Simulations. Why model? If we know that legitimacy is required for human governance, what rules can we establish that will ensure the legitimacy can be established and maintained over time? By giving our agents simple rules to follow, we can test whether a stable system of legitimacy can emerge. Modeling allows for the creation of precise language about legitimacy, which can be expressed mathematically, that is not subject to ambiguity in the same way that the verbal description of "consent" can be.

Creating a model for social science research is not a new endeavor. Other human systems such as economics, and the settling patterns of people and businesses in cities are also Complex Adaptive Systems through which models have shown emergent patterns of behavior. The following are a few of these examples:

- Thomas Schelling's model of racial segregation demonstrated that in a population where only relatively few individuals show a desire to live next to their own race resulted in the racial segregation of the entire population.[17]

- Paul Krugman – Provides a mathematical model of describing how local information can lead to the aggregation of businesses in a city without central planning. No matter where the placement of businesses are located within a city at the beginning, over time, they will form distinct clusters –this emerges as a result of each business reacting to the information that is locally acquired.[18]

- Joshua M. Epstein and Robert Axtell's "Sugarscape" models a world of economic scarcity where individual agents are searching for resources locally. Agents with different capacities looking for resources generate an emergent behavior where some individuals become wealthier than others in a classic unequal distribution wealth pattern.[19]

Models allow for the testing of assumptions that require precise definitions. The goal of a simulation is to see if the assumptions made result in real world patterns. The above

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[17] Thomas Schelling, "Dynamic Models of Segregation," *Journal of Mathematical Sociology* 1 (1971):143-186.

[18] Paul Krugman, *The Self-Organizing Economy* (Cambridge, MA: Blackwell Publishers, 1996).

[19] Joshua M. Epstein and Robert Axtell, *Growing Artificial Societies: Social science from the bottom up (Cambridge, MA: MIT Press, 1996)*, 35.

models have shown how interaction at the local level can generate a pattern of behavior that mimics situations in the real world.

Legitimacy Simulation is a first attempt at a similar type of model that utilizes the assumptions described in this paper in order to generate legitimacy. It is a computer program created to allow users to input various values to test in order to see what affect changes in initial conditions have on the model as well as how the system behaves over time. Even though *Legitimacy Simulation* is a relatively simple computer program, the number of variations and results that can be obtained are enormous.

In general, *Legitimacy Simulation* uses a combination of Muscovici and Doise theory of group polarization and Gurr and Feieraberd et al theories on coercion to define a set of rules for interactions that determine how a given population in a location will change its consent. Certain features are definable by the user such as the total population, size of interacting groups, the level of coercive police presence as well as several other features that allow for the testing of alternate assumptions and their affects at achieving legitimacy.

Every individual in the model has a consent level that ranges from a value of 1 to 5 where 1 represents extreme opposition to a rule, 3 represents a neutral level consent, and 5 represents extreme loyalty to a rule. The user determines the distribution of initial consent levels within the population. Once this is done, the simulation can be set in motion and all the agents then begin to interact with each other and altering their consent level to match

the rules determined above. By setting the multiple variables to different values, it is

possible to then see how this affects the emergence of legitimacy. In addition, at all times,

the program will be "taking a poll" of every member of the population so that the status

of the rule's legitimacy can be measured and tracked over time.

More precise details of how this program was created with the assumptions of this paper

is detailed in Appendix 1, and the results of one set of simulation runs is presented in

Appendix 2.

In running a series of simulations, the following patterns have appeared:

1. When the system starts with a 50-50 distribution where the system average

    consent level is Neutral (value 3), it is equally probable that the system average

    will move toward equilibrium at either Weak Supporter (value 4) or Weak

    Opposition (value 2) level.

2. When the police level is set at 20% and the average consent level starts at Neutral,

    there is a 1 and 5 probability that the system can reach Weak Supporter

    equilibrium. The other times result in opposition.

    a. However, in this same police scenario, if the consent level begins where

        51% of the population is supporters and 49% is in opposition, 100% of the

        simulations result in Weak Supporter equilibrium.

    b. The break-even distribution of supporters to opposition where the

        equilibrium is unpredictable (where the result can either be in support or

        opposition is somewhere between 50.38%-50.50% initial supporters.

This is only a sample of the type of information that the simulations can produce. It can from the basis for testing many other assumptions that would require more space in this paper than is necessary. It is sufficient here to indicate the model's potential for future research.

Conclusion

Legitimacy is an important component to human governance. In understanding the territorial basis of legitimacy, it is possible to simulate conditions in the real world in which legitimacy is either desired or lacking.

If we look at contemporary times, the emergence of legitimacy through territorial interaction is all around us. Massive demonstrations in Spain following a terrorist attack in Madrid allowed large-scale personal interaction to take place that resulted in a change of government at the polls in March 2004. Afghanistan's difficult terrain and terrorist strikes against the occupying coalition forces are preventing interaction between different geographic areas of the populace making it impossible to form a central government with legitimacy over the entire population. In Cuba, Fidel Castro's long reign implies that he has legitimacy and that some form of consent is at work in allowing him to remain in power. Either interaction of the populace has been impeded such that no action can be taken to express a lack of consent, or, that the Cuban people have had adequate local interaction and genuinely support Castro. In any case, the success of Castro's successor

will be determined by how carefully s/he is aware of where the true level of consent

exists in the country when people gather and s/he acts consistently with this expectation.

Models such as the one proposed here can help to direct efforts in establishing how to

target information in order to promote legitimacy aims. By testing multiple scenarios on

the computer, it may be possible to avoid potentially disastrous outcomes as such

situations are analyzed before action is taken.

Appendix 1
Computer Simulation of Legitimacy

This section will detail how the computer program *Legitimacy Simulation* was created. It will describe the tools used for programming, the theory and assumptions used for creating the code for the program as well as including the relevant computer code itself used to determine the results of interaction. The application is available at

http://fletcher.tufts.edu/research/2004/Renert-Joey-LegitimacySimulation.sbp

Tools

The model was created using two programs, RePast 2.0 and SimBuilder 1.0.1. Both are products of the University of Chicago's Social Science Research Computing department. RePast was created in order to run agent based simulations with the intention to "support the modeling of belief systems, agents, organizations and institutions as recursive social constructions. The fuller goal of the toolkit is to allow situated histories to be replayed with altered assumptions." [20] While RePast uses the Java programming language, SimBuilder is constructed for making RePast easier to use by non-professional programmers and provides a quicker and more visual way to create an agent based simulation using windows, menus and pre-written procedures. It uses a subset of the Python programming language (called Not Quite Python). Both programs are freely available for download.[21]

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[20] *RePast Overview,* (accessed May 3, 2004); available from http://repast.sourceforge.net/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=1&page=1.
[21] *RePast Home Page,* (accessed May 3, 2004); available from http://repast.sourceforge.net/index.php.

The program *Legitimacy Simulation* was written using SimBuilder 1.0.1 and run using

RePast 2.0.[22]

Legitimacy Simulation theory and assumptions

The theoretical background to the program is that the stability of a human governance

system is an emergent characteristic of a legitimate rule-based system and arises from the

interaction of people in a physical setting. It is a Complex Adaptive System in that

individuals, through interaction with their neighbors, make judgments about their level of

consent to any rule. At the same time, local interactions generate a system measurement

of overall legitimacy that is both unknown and uncontrollable by any of the individuals.

The question that the *Legitimacy Simulation* attempts to answer is what are the conditions

where a rule system can maintain legitimacy, given that it is based on physical

interaction?

To answer this question, the computer must be programmed with the following

information:

1. What is the initial level of consent for each member of the population?

2. Where is each individual located and how do they move over time?

3. How does the population interact with each other and how does this result in

   individual change in consent?

In answering the questions above, either assumptions were made or actual theory was

applied in finding the answer. The advantage of using a computer simulation is that all of

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[22] Many thanks go to Charles Renert for assisting me with the development of *Legitimacy Simulation* using SimBuilder. Any problems in logic, output or format of the code as well as interpretations of results are solely my own.

the assumptions must somehow be made quantifiable so that the computer is able to take

some action. This requires exactness in language that is not subject to misinterpretation,

as the computer will perform the calculations exactly as they are written and the results

are incontestable and can be repeated. In addition, if the results do not come out as

expected, the assumptions can be precisely modified so that new results are obtained.

These agent based simulations act as a laboratory for social science research that is not

easy to do in the real world.

For the *Legitimacy Simulation*, the above information was programmed as follows:

1. The levels of consent that are possible for each individual agent can range from 1 to 5

    as follows:

    1 is defined as strongly opposed to the rule. (Rebel)

    2 is defined as being weakly opposed to the rule. (Weak Opposition)

    3 is defined as being neutral, neither supportive nor opposed to the rule. (Neutral)

    4 is defined as somewhat supportive of the rule. (Weak Supporter)

    5 is defined as strongly supportive of the rule. (Loyalist)

    These valuations are based on typical poll questions that could be asked of the

    population at a given time.

    The program makes no assumptions as to what the distribution of consent is among

    the population. Therefore, at the beginning of the simulation, the user of the program

    can determine what percentage of the population is Loyalist, Rebel, etc. This allows

    research into how changes in the initial consent distribution of the population affect

the rise or decline of legitimacy in the system. In addition, unlike the real world where a representative sample is the only way to realistically gather opinions, the program can get the consent level of every member of the population at any time. There is no margin of error.

2. The location of any individual is randomly determined, both initially and after each interaction. This theory of legitimacy argues that random encounters as they occur in physical space are a key characteristic that results in the rise of stability as opposed to the one-way or directed flows of modern communication where interaction is limited. This assumption maximizes interaction within a population.

As for the space itself, the program builds a 100x100 grid representing 10,000 available spaces. The population can be set by the user to any value up to 10,000 in order to test how population density affects interaction and legitimacy. (These values are arbitrary and are the result of limitations in the speed and memory of my own personal computer. To have larger populations interact would make each simulation take too long and nearly useless for obtaining any results.)

The weakness of strictly random interaction is that it is not the sole type of interaction that takes place in the real world. There are other patterns of interaction that people repeatedly make in a locality. This includes interacting with the same group of relatives, friends and co-workers as well as with the public at large. The basis of this legitimacy theory is that physical interaction is the key to determining legitimacy, so directing movement of individuals is not inconsistent with this. This particular model

does not look at directed interaction, as developing the rules and outcomes for these interactions would be very complex. However, if a researcher with specialized knowledge of particular ethnic, religious, political or economic groups' characteristics in terms of how they move, who they interact with and the rules for interaction, s/he could certainly add this feature to the model to see how those particular physical interactions affect legitimacy.

3. Two assumptions were used in determining the type of interaction and its results. These assumptions were Moscovici & Doise theory of group polarity and Gurr and Feieraberd et al. on the effects of legitimacy when a regime uses force on a population.

Moscovici & Doise in *Conflict and Consensus* state clearly their theory of group polarity in quantitative terms:

> "Stated in statistical terms, this hypothesis predicts that the mean of the choices on which the group members reach agreement is closer to the dominant pole of its scale of values that the mean of the initial choices made by each one of them separately."[23]

By using the numeric values from the levels of consent (Loyalists to Rebels), it is very simple to have the computer take any given group of the population, determine its initial mean consent level based on each individual's consent level, and then to change each individual's consent to bring them closer to the group mean.

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[23] Moscovici & Doise, *Conflict and Consensus,* 99.

This hypothesis, however, carries with it 3 characteristics that must be assumed. First, it is not clear what constitutes a group. Is it 2 people, 8 people or 20 people? For this situation, the program allows users to determine what spatial area to count for a group size. If the group size is set at 10, the program will count the number of individuals in a contiguous region of ten grid spaces, so the group size can be between 0 and 10 individuals, depending on the distribution of individuals at the time of calculation.

Second, it is also not clear how much an individual's consent level will change whose original consent level is different from the mean. If an individual is Weakly Opposed to a rule, but the group average is close to Loyal, does this individual become Neutral, Weak Supporter or Loyal? As there is no clear answer to this, the program assumes that an individual will move one unit of consent in the direction of the mean if they are neutral or of the opposite consent level to the mean. In the case above, Rebels would become Weak Opposition, Weak Opposition would become Neutrals, and Neutrals would become Weak Supporters. Loyals or Weak Supporters would not change as the mean was already in their favor.

An additional note with respect to this point is that because the consent scale is from 1 to 5, the Neutral consent state is defined as 3. However, when taking the average of from a group of values, the likelihood that this value would precisely ever equal 3 is remote. This situation would make it nearly impossible for the existence of any Neutral over time as the average would always be either more or less than 3. Therefore, to ensure that a Neutral group of individuals could exist, the program

defines the system as being Neutral at a consent level between 2.9 or less than 3.1. If the average of the group falls within this range, the Neutral individuals will remain Neutral. This is a completely arbitrary decision.

Third, while this theory explains why groups don't usually come to agreement with compromise solutions but favor more radical ones, it cannot explain how individuals themselves can become radicalized. Because change is based on an average, unless the entire group is already radicalized, the average cannot be radical. The most polarized that any group can become is always just under the radical positions. Therefore, there is no way to create a radicalized consent during the simulation; this consent state can only be created upon initializing the simulation.

For Gurr and Feieraberd et al., while their hypotheses show that coercive force can negatively affect legitimacy, it is not clear exactly the level that this takes place. For example, in introducing a police presence in the *Legitimacy Simulation*, what is the mechanism by which this presence affects consent? Once this mechanism is determined, then the questions are how much does this presence affect the consent level of individuals exposed to those coercive elements, and how is an individual's consent level affected if they are not exposed to the coercion?

Legitimacy Simulation makes the following assumptions as to the effects of police presence during group interactions. The first is that the presence of a coercive force will prevent proper interaction from taking place. Therefore, since no average consent

can be determined, police prevent change of consent occurring as a result of the group process. At the same time, however, each individual is given an interference counter that remembers the number of times that the police have interfered in their particular group interactions. In addition, each individual has a toleration level that, when exceeded, will result in that individual's consent level moving toward more negative opinions of the rule. The more times an individual is exposed to the police, the greater the likelihood that this individual will begin to oppose the rule system. With these assumptions, it is now possible for a population to turn into Rebels with excessive presence and interference by the police.

Because the magnitude of how the consent level changes based on interaction with the police, *Legitimacy Simulation* allows the user to define what effect police interference will have and how tolerant the population is to these effects. For example, by setting a tolerance level of 4 for the population, and designating a 2 for how much the level of interference increases toward the tolerance, by the time an individual has 3 repeated interactions with police (for an interference level of 6), this will anger the individual and result in their consent level moving one step toward opposition. On the other hand, the user can designate how the interference level reduces for an individual over time when they do not encounter the police. This is essentially the residual impact of police interference over the long term. If using the above example of 2 for interference increase with police interaction and then to designated as 1 the reduction, this means for every encounter with police, the

individual will need to not encounter the police for the next two interactions in order for their interference level to return to normal.

In addition to being able to set the interference increase/decrease level and individual tolerance level, the number of police present in the simulation can be determined by the user. This is a percentage based on the total number of individuals in the simulation. This percentage is used as the probability that any group interaction will have police presence; so a 10% police presence means that the police will interfere with 10% of the groups. The determination of which groups will be interfered with is completely random.

As mentioned previously for other assumptions, these assumptions of how police affects legitimacy and the random nature of their interaction with the populace can be changed if researchers have specific information that would allow for this behavior to be as realistic as possible in a given circumstance.

Other Program Features and Code

When the program is run, the user can choose to set the levels of the variables listed above. Once started, the program continues to run until the user stops the program. While the program is in operation, it is constantly displaying how the consent level of the entire systems changes after each iteration, known as a tick. A tick represents a time scale and is the moment in which all the assumptions are actually calculated on all the individuals and new results are created. After performing the calculations at each tick, the program polls

all the agents to determine their consent and interference levels. This can be seen

graphically on the screen as a series of either green (Supporters and Loyalists), gray

(Neutrals) or red (Opposition and Rebels) dots in a configuration that shows the location

of all the agents.

In addition, the computer also records all the consent levels and interference levels at

every tick. When the user stops the program, these values are saved as a text file on the

users computer. This data can then be moved to any other program (such as Word or

Excel) and presented in any way deemed useful.

The following is the Not Quite Python code which implements all the above assumptions

and governs the interaction of the agents:

```
GroupIDNumber = 0
TotalGroups = self.space.getSizeX() * self.space.getSizeY() / self.GroupSize
while (GroupIDNumber < TotalGroups):
 self.AgentsInGroup = 0
 self.OpinionTot = 0
 for agent as LegitimacyAgent in self.agentList:
  AgentGroup = ((agent.getX()* self.space.getSizeX())+ agent.getY())/self.GroupSize
  if (AgentGroup == GroupIDNumber):
    self.AgentsInGroup = self.AgentsInGroup + 1
    self.OpinionTot = self.OpinionTot + agent.getConsentState()
 if (self.AgentsInGroup > 0):
  # I multiply by 10000 because the program does not allow int -> float conversion
  # The multiplication eliminates most of the int round-off error on the division
  # below.
  self.AvgOpinion = ((10000000 * self.OpinionTot) / self.AgentsInGroup)
  PoliceRand = (Random.uniform.nextIntFromTo(1, 100000000))
  if ((self.PoliceProbability * 100000000) > PoliceRand):
    for agent as LegitimacyAgent in self.agentList:
     AgentGroup = ((agent.getX()* self.space.getSizeX())+ agent.getY())/self.GroupSize
     if (AgentGroup == GroupIDNumber):
       if (agent.getInterference() < self.InterferenceThreshold):
         agent.setInterference(agent.getInterference() + self.InterferenceIncrement)
```

```
    else:
      agent.setInterference(agent.getInterference() + self.InterferenceIncrement)
      if (agent.getConsentState() > 1):
        agent.setConsentState(agent.getConsentState() - 1)


  else:
    for agent as LegitimacyAgent in self.agentList:
      AgentGroup = ((agent.getX()* self.space.getSizeX())+ agent.getY())/self.GroupSize
      if (AgentGroup == GroupIDNumber):
        if (agent.getInterference() < self.InterferenceDecrement):
          agent.setInterference(0)
        else:
          agent.setInterference(agent.getInterference() - self.InterferenceDecrement)
        if (self.AvgOpinion > 30000000) and (agent.getConsentState() < 3):
          agent.setConsentState(agent.getConsentState() + 1)
        else:
          if ((self.AvgOpinion < 30000000) and (agent.getConsentState() > 3)):
            agent.setConsentState(agent.getConsentState() - 1)
          else:
            if ((self.AvgOpinion > 31000000) and (agent.getConsentState() == 3)):
              agent.setConsentState(agent.getConsentState() + 1)
            else:
              if ((self.AvgOpinion < 29000000) and (agent.getConsentState() == 3)):
                agent.setConsentState(agent.getConsentState() - 1)
  GroupIDNumber = GroupIDNumber + 1
```

Appendix 2
Example of a Simulation Run

In the course of running experiments using *Legitimacy Simulation*, many hundreds of simulations were run. When running the simulations without police presence, it was apparent that the system is highly sensitive to initial conditions in terms of the distribution of consent levels among the population. When setting a population of 5,000 and a group size of 10, if the raw number of individuals were either loyal or supporters was larger at the start of the simulation, the system would reach equilibrium at a consent level of around 4 (representing Weak Support). The opposite was also true – if the numerical advantage were on the opposition or rebel side, equilibrium would be reached at a consent level of around 2 (representing Weak Opposition). Therefore, it became apparent that the only condition worthy of study was where the initial consent level of the population was evenly distributed between the support side and opposition side. When this is the case, there is no way to predict which side will eventually obtain equilibrium position.

The next step was to set the police level to 20% of the population where the interference level increased by 2 every time an individual encountered the police, and the interference level reduced by 1 every time the individual did not encounter the police. When the interference threshold level of 4 was exceeded, an individual's consent level would move toward opposition. When this simulation is run with an even distribution of Loyal and Rebel individuals, the system nearly always fell to equilibrium on the side of the Weak Opposition. From this point I wanted to find out

what distribution of consent level could offset the presence of this level of police

force. In other words, how many Loyalists must the system start with in order to favor

a supportive outcome most of the time? Also, is there a certain distribution that would

make the resulting equilibrium indeterminate? The following is a table documenting

the various simulations:

% Loyal at start	% Rebel at start	Number of outcomes that favored Support	Number of outcomes that favored Opposition
50	50	3	15
55	45	10	0
51	49	10	0
50.5	49.5	8	2
50.25	49.75	1	7
50.375	49.625	1	8
50.381	49.611	4	8
50.44	49.56	2	8
50.47	49.53	2	8

Figure 1 and Figure 2, shows two graphs illustrating how the consent levels for the last

runs (Loyalist at 50.47%) evolved over time, and the similarities between how the

evolution resulted either in equilibrium of Supportive or Opposition outcomes.

From these graphs, the starting point shows an equal number of Loyal and Rebel consent

levels. Also, the number of agents experiencing interference at different levels is also

consistent across both graphs.

The pattern shows that up until about 5 ticks, there is a gradual decline in both the

extremist positions corresponding to the rise of the both the Weak Supporters and Weak

Opposition at nearly identical rates. However, sometime after the 5th tick, their paths

Figure 1
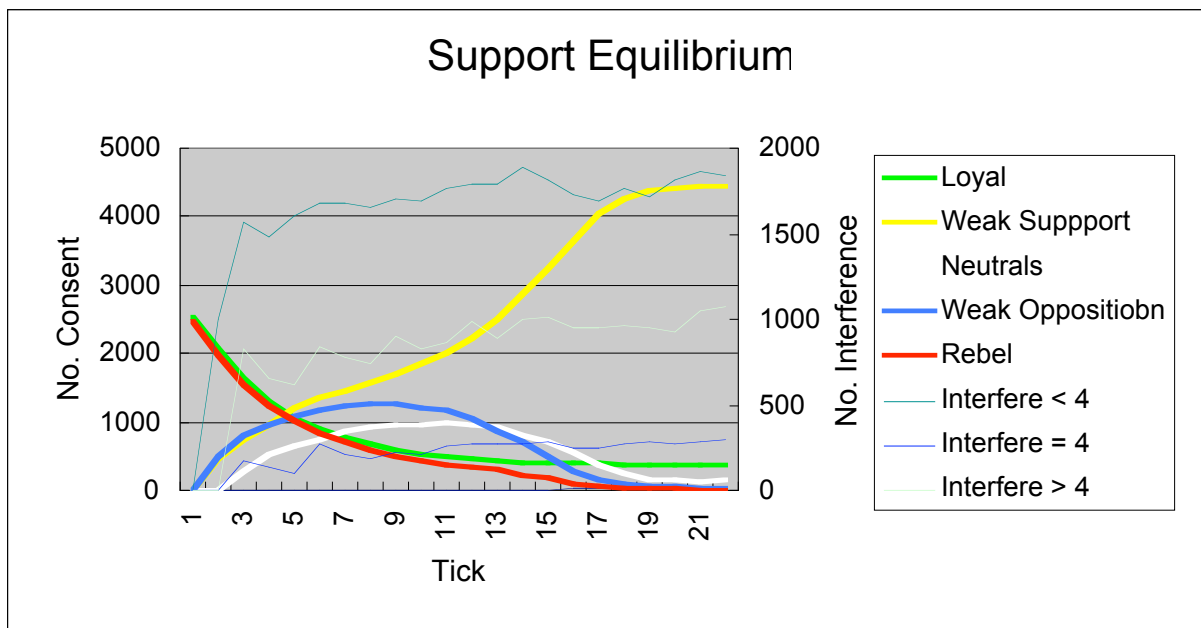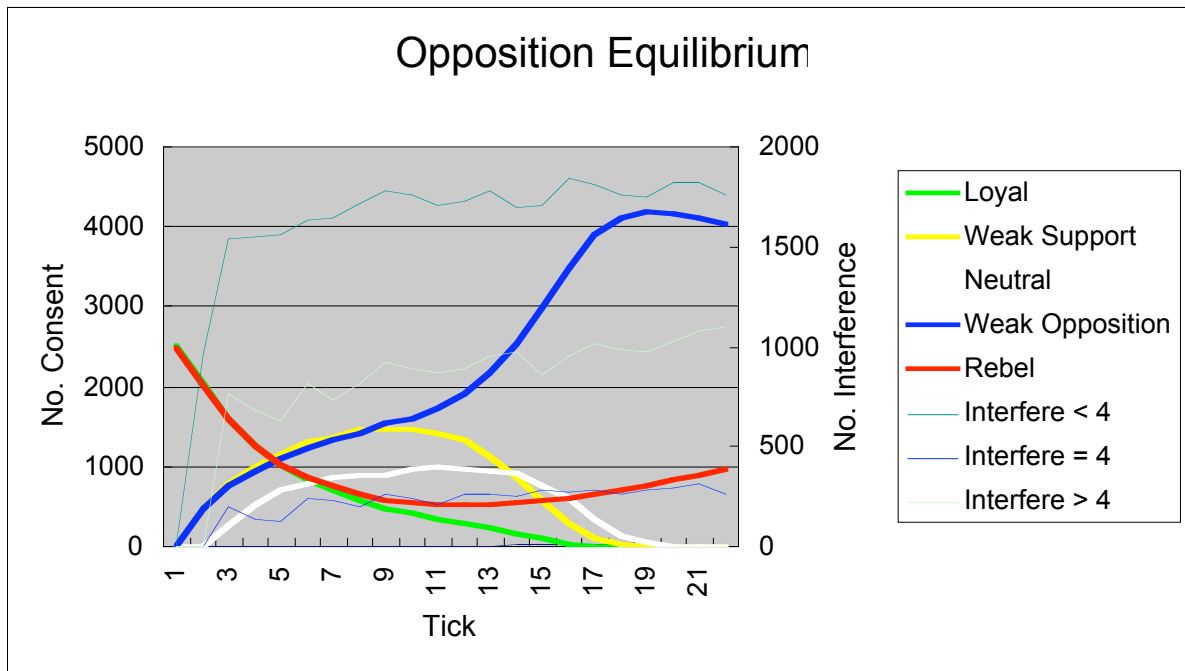
diverge significantly until equilibrium is reached. Once this equilibrium is reached, this result does not change and has remained consistent for over 3000 ticks.

What this demonstrates is that the assumptions that are presented in this particular model lead to an equilibrium point that cannot be disturbed. As this does not reflect the reality of legitimacy, as it can be stable, then change, then return to stability, the model is missing some component that can disrupt the equilibrium. Some of the refinements with respect to directed group interactions or even adding an economic component to consent might add the necessary dynamics.

What the model does show, however, is the strong system equilibrium that results when group polarization theory is in effect. But this mechanism alone cannot explain why equilibrium of certain simulations would be unpredictable when the total number of values of Supporters and Opposition at the start is equal. The only explanation for the results is that the actual physical location of the individuals changes, resulting in varying concentrations of group behavior. Because the distribution and movement of individuals is random, it is not possible to look at the effects of certain types of group configurations to see what the result is on a system level. At any rate, the importance of physical location in affecting the tipping point of when the system moves toward an equilibrium needs to more carefully looked at.

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