

**Secessionism in Multicultural States:
Does Sharing Power Prevent or Encourage It?***

Abstract

States worry greatly about secessionist movements and the ethno-political mobilizations that can give rise to them. Political scientists agree that the institutional framework within which identity groups interact powerfully determines the goals, violence, and trajectories of such movements. However, both small N and large N researchers disagree on the question of whether “power-sharing” arrangements, instead of repression, are more or less likely to mitigate threats of secessionist mobilizations by disaffected, regionally concentrated minority groups. Using the PS-I modeling platform, a virtual country—Beita—was created, containing within it a disaffected, partially controlled, regionally concentrated minority. Using the tenets of constructivist identity theory as the basic driver for the algorithms controlling behavior by agents in the Beita “landscape,” the most popular theoretical positions on this issue were tested. Data from experiments involving hundreds of histories of Beita, run under modulated, controlled conditions, lend support to some of the more sophisticated interpretations of the effects of repression vs. responsive or representative types of power-sharing. While in the short run repression works to suppress ethno-political mobilization, it does not effectively reduce the threat of secession. Power-sharing can be more effective, but it also tends to encourage larger minority identitarian movements.

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Correlations, Cases, Comparisons, and the Study of Institutional Effects on Secessionism

In a world of states and dominated by states it is unsurprising that the maintenance of state boundaries would appear as a vital problem and that “state contraction,” “secession,” or “partition” would be figured, by most scholars and politicians, as evidence of public policy failure or as desperately exercised options of last resort. To be sure, in the 1990s some scholars revived interest in territorial self-determination via partition of existing states as a sometimes useful policy option for individual states and for the international community. Against a background of severe political instability in the Balkans, central Asia, Africa, the Middle East, and the former Soviet Union, it has been suggested that some political conflicts might be managed best by “rightsizing” states, i.e. adjusting their boundaries or creating new states (O’Leary, Lustick, and Callaghy 2001; Hoppe 1998). Others have emphasized the occasional necessity for forcible partitions and even population transfers to achieve a correspondence between ethnopolitical or sectarian allegiances and the contours of states legitimized by them (Kaufmann 1998; Tullberg and Tullberg 1997). On balance, however, the bulk of the scholarly and public policy community continues to oppose such approaches on moral, legal, practical, and other grounds. Instead they direct much more attention to how conflict and especially violent conflict can be managed while protecting existing state boundaries (Carley 1997; Horowitz 1985, 588-592 and 1997, 435; Kumar 1997; Sambanis 2000).

Many factors, considered independently or in interaction, have been prominent in recent studies of the etiology of secessionism. They include the implications of economic advantage/disadvantage, topography, world region, demographic patterns, globalization, cultural distinctiveness, inter-group antipathy, type of identities in conflict, and outside intervention by irredentist or culturally related powers. In this paper, however, we focus specifically on one key thread in this sprawling conversation—the relationship between institutionalized empowerment of potentially secessionist groups and the appearance of secessionism.

Indeed it can be argued that the single most popular line of argument offered by scholars to policy makers has been to suggest political and institutional arrangements to satisfy demands by whatever regional, religious, ethnic, or other groups with secession-potential appear to threaten the integrity of the existing territorial states. Under this rubric various techniques and approaches have been elaborated, including affirmative action, multicultural liberalism, federalism, autonomy, cantonal arrangements, or power-sharing (Danspeckgruber 1996; Gurr 2000, 151-177; Horowitz 1985, 601-680; Hurst 1990 and 1998; Lapidoth 1996; Lijphart 1977 and 1985; McGarry and O'Leary 1993; Sambanis 2000; Tiryakian 1998). The general view here is that by responding positively and integratively, if only partially, to the demands of disgruntled minorities, secessionism can be abated and secession prevented while preserving the predominance and stability of the central state. By making government more responsive to the concerns of disgruntled minorities, potentially secessionist groups will be encouraged to feel confident of representation and protection for their most vital concerns. Such institutional responses by the central state are deemed capable, if designed and implemented properly, of reducing the intensity of separatist demands by those who otherwise might make them. In Hirschman terms, the impetus for exit is to be blunted by providing opportunities for voice and reasons for loyalty (Hirschmann 1970).

However the opposite view is also strongly argued—that creating autonomous, federal, or otherwise devolved institutions of self-government or self-administration, especially if they allow regionally concentrated groups to mobilize within them, are liable to contribute to secessionism by affording elites and groups the political resources they need to undertake mass mobilization and wage a separatist struggle. This literature supports a widely acknowledged fear among state elites that granting regionally concentrated minorities special forms of autonomy, devolved powers, or privileges within a system of asymmetric federalism would not so much assuage demands for representation, control, or resources, as lead the country down a slippery

slope to separatism (Cornell 2002; Hale 2000; Hechter 2000; Mozaffar and Scarritt 2000; Roeder 1991).

A distinct but related line of argument was spurred in part by the collapse of the Soviet bloc, successful secession (or partition) in Yugoslavia and Czechoslovakia, and the eruption of secessionist conflicts in many parts of the former Soviet Union. Some researchers during the last decade have argued that democratization might not be able to be fine-tuned enough to prevent devolution and empowerment from producing more rather than less secessionism and attendant violence. From this position there is a tendency to dismiss the importance of minority group dissatisfaction with central state policies as an explanation for secessionism. Instead, a “supply-side” interpretation is favored. On this account, illegal mobilization against the state for secessionist purposes does not increase as a function of demands for more responsiveness, democracy, or autonomy. Rather it arises when the human and material wherewithal to make such risky behavior profitable is available to political entrepreneurs and the small group of activists actually engaged in mobilizational or violent activities (Collier 2000; Laitin 2001, Laitin and Fearon 2000).

Another form of the position that dangerous instabilities arise from the abilities of peoples to rebel, rather than from the depredations of states, has been articulated by researchers who point to apparent correlations between democratization and the eruption of severe ethnic violence and secessionism. Jack Snyder offers a neo-Huntingtonian argument that stresses the importance of establishing strong political institutions prior to democratization to prevent demands for participation from disrupting the political stability of the state. Whereas Donald Horowitz had used peaceful inter-ethnic accommodation in Malaysia and violent secessionism in Sri Lanka to support his thesis that properly designed democratic institutions prevent ethnic violence and secessionism, Snyder, writing in the late 1990s, argues that Malaysia illustrates the

“advantages of authoritarianism” while Sri Lanka shows the “dangers of democratization” (Snyder 2000, 275 and 280).¹

This line of analysis reflects a sub-theme in the literature on containing potentially secessionist and violent ethnic mobilizations via repression, control, or domination. The idea that “repression works” is implicit in the argument that states can maintain their borders, prevent secessionism, and preserve the political position of ascendant groups by refraining from offers of institutional compromises or added resources to accommodate out-group demands (Laitin, David D. 2001, Laitin, David D. and James Fearon 2000, Collier 2000).²

The current state of the scholarly debate regarding the general relationship between institutionalized empowerment of potentially secessionist regional groups is confused. Hechter and Okamoto address this head on in their 2001 meta-study. They observe that “there is little consensus about the kinds of political institutions that are most likely to contain nationalism” (Hechter and Okamoto 2001, 203). As an example, they describe three positions held by important groups of scholars regarding the effect of federalism on nationalist mobilization: 1. Federalism reduces nationalism; 2. Federalism increases nationalism; 3. Federalism itself does not determine strength of nationalism (Hechter and Okamoto 2001, 204). Similar to other of the more sophisticated approaches to this question, Hechter and Okamoto conclude that causal relationships between institutionalized empowerment of potentially secessionist minorities and the rise of secessionism are complex, non-linear, and highly sensitive to context. Thus in his own work Hechter suggests “a possible reconciliation of the two opposing arguments in the literature. *Whereas decentralization may provide cultural minorities with greater resources to engage in collective action...at the same time it may erode the demand for sovereignty*” (Hechter 2000, 10).³

A similarly nuanced view of the curvilinear patterns associated with different combinations of pairs of important variables is advanced by Atuhl Kohli. He argues that if the central authority structure is strong but willing to be accommodating and responsive to demands by potentially

secessionist minorities, the result will be short term increases in ethno-political mobilization but long term decreases in likelihood that the state will face potent secessionist threats.

Unaccommodating strong states can expect continuing cycles of mobilization and repression.

Weak but accommodating states face increased possibilities of peaceful break-up. Weak and unaccommodating states can be expected to experience turbulence or secession/collapse (Kohli 1997).⁴ More common, however, among scholars studying the relationship between autonomy, devolution, power-sharing, federation, affirmative action, electoral reform, democratization, etc., and ethnically charged secessionism, is the admission, ala Hecther and Okamoto, that available findings are contradictory and inconclusive (Hechter 2000, 9; Spencer 1998, 3; Freeman 1999).

An Agent-Based Modeling Approach to the Study of Secessionism

We turn now to consideration of the methods used to produce these, let us say, incomplete but intriguing results. Two methods are prominent in scholarly work on this subject. One is to conduct process tracings of a significant case or cases, using synchronic or diachronic comparisons. The other is to draw on one or more large data sets describing events, countries, or minority groups. Here the technique is to examine whether hypotheses about general relationships between institutional practices and outcomes are consistent or not with the patterns discernible from consideration of the data in these arrays.

There is much to be learned in these ways. Clearly there is no substitute for studying the phenomena themselves, in the real world, through careful scrutiny of crucial cases, through artfully structured comparisons of small numbers of episodes, and through statistically sophisticated treatments of highly processed, standardized, but rigorously conceived data sets. But it is our view that with so many variables involved and so many interaction effects present; with the great difficulty of gathering data relevant to those variables deemed theoretically most interesting; and with the extreme scarcity of episodes of secessionism and secessionist conflict,

when compared to the array of potential contexts for their emergence, a third technique—agent-based computer simulation—has a crucial role to play in advancing the study of questions about the conditions which shape the likelihood of serious internal threats to the integrity and stability of states.

Among the most daunting challenges to scholars using the small N approach, drawn from one case, or from the structured focused comparisons of a small number of cases, is the stringent limit on the array of possible natural experiments that can be arranged. This limit arises from the rarity of full-blown secession, and the infrequency of severe ethnic conflict relative to number of interethnic encounters that might have but did not produce such conflict. Typically the investigator must settle for some level of contamination of the comparison based on factors that were either inconveniently different or similar about the cases or about the episodes being compared within a single case study. Ideally the investigator would be able to select cleanly sorted comparisons, leaving all possibly relevant values identical except for differences on either the dependent or independent variable. In the real world, investigators have to settle for best available, partial, and confounded, and therefore clouded comparisons.⁵

Among the most daunting challenges facing scholars using large-N approaches is the inevitable gap that arises between the imputed meaning of the variables under investigation, as specified in theories under test, and the real measurements used to indicate the values taken on by those variables in specific cases. These gaps are in part produced by the inevitable need to use best available quantifiable surrogates for the complex sentiments, opinions, behavior patterns, and circumstances that are of theoretical interest. Such gaps are then widened by the need to treat data gathered in different ways in different countries as comparable across cases, and by the serious differences across cases and time periods in the reliability of the information gathered. Such problems are then further compounded by the challenge of establishing and enforcing coding routines that avoid issues of selection bias, pass tests of inter-coder reliability, and are

updated regularly based on new or improved knowledge available about cases or historical episodes. Combined, these challenges pose serious risks that findings may be driven as much or more by artifactual aspects of data collection and processing than by the underlying patterns putatively reflected in the data collected. It is probably safe to assume that a substantial portion of the disagreements that arise among researchers using these techniques with the same or similar data bases springs from these problems (King and Zeng 2001; Chandra 2001, 10).⁶

The kind of “bottom-up” simulations offered by agent-based modeling (also commonly known as “computational modeling”) offers researchers a third way. If theoretical expectations are relatively clear, but data are hard to find that reliably match theoretical categories; if available natural experiments do not allow crucial questions to be posed cleanly because of inconvenient confounds; and if key aspects of the phenomenon of interest are relatively rare, computer simulation should be considered a logical complement to other techniques of analysis. Such simulation involves creating a virtual world in which the basic theoretical relationships among individuals or groups are implemented directly, obviating the need for surrogate measures or indices of key variables. Large batches of “histories” or “futures” of these worlds can be produced by randomizing initial conditions or the pattern of perturbations to which the world is subjected. Standard statistical tests can then be run on the distributions of outcomes produced under specified conditions. By controlling both initial conditions and/or the valences and sequence of the streams of perturbations, the effects of change in individual parameters of interest or the interaction between two or more specific variables of interest can be identified.⁷ Such variables could include predominance of different identities across the population, geographical concentration patterns, indices of difference or similarity across groups of agents, amount of variation in agent influence, etc. By randomizing perturbations and/or initial conditions and collecting data on the trajectories produced by the “landscape” as it moves forward in time (with “agents” interacting and taking on or maintaining values depending on the algorithms with which

they are endowed) researchers can systematically conduct the thought experiments that they cannot conduct or observe in the real world, and cannot perform in their heads because of the hundreds of thousands or even millions of calculations involved in every step.

Beita—A Virtual Multi-Ethnic State

To explore the impact of these variables on secession and secessionism a virtual state was created, named, for convenience, “Beita.” Beita was designed using the PS-I simulation platform in conformance with prevailing anthropological and political theories of constructivist identity change, social psychological approaches to identity, and basic theories of interest driven political mobilization as constrained by history and diverse cultural affinities.⁸ Our objective was to capture in composite form certain common features of multi-cultural or multi-ethnic states that might encounter threats of secession.

As displayed in Figure 1, Beita is square with 65 cells, or agents, per side. The outside agents comprise a fixed, unbroken, and impermeable array of “border” agents figured as black cells. Within these borders are located 4096 agents that comprise the Beita polity.⁹ Each square-shaped cell, or agent, in this array is endowed at time zero ($t=0$) with a repertoire or portfolio of identities, one of which is “activated,” i.e. visible to the agents in its neighborhood (the eight agents bordering it on its four sides and its four corners). Different colors represent different identities. As Beita moves forward in time the rules governing agent behavior permit the rotation and trading of identities as functions of changing advantages and disadvantages associated with individual identities and with local conditions. These changes at the micro level, and the

[Figure 1 about here]

emergent patterns of change at the macro level, are reflected in patterns of color change as some identities coalesce into control of particular regions or lose their grip on those regions. Statistics

describing changing characteristics of Beita are automatically collected for diachronic and synchronic analysis.

The polity is divided into four quadrants, not by boundaries but by changes in patterns of overlapping and shared political identities. The upper left, or “northwest” quadrant (NW) is the core of the state. A national bureaucracy, comprised of a web of agents with double, triple, or quadruple the “influence” of “basic” agents radiates out from this quadrant into the other quadrants. In the “standard” version of Beita, used as a baseline for experimental purposes, these “bureaucrats” all have the currently dominant, i.e. incumbent, identity, identity “5,” in their repertoires and almost all of them are activated on identity 5 at $t=0$. Two other identities, identities 4 and 13, are “loyal opposition” national identities. All national bureaucrats have these identities in their repertoires.

Top echelon bureaucrats have an influence level of 4, as compared to the influence of a basic agent whose influence level is 1. Top echelon bureaucrats are few in number, relatively centrally located within the radiating bureaucratic web, comprised (initially, at least, since all identities in Beita are tradeable) of only the three national identities, and are marked visually with a circle inside the normal agent square. Mid-echelon bureaucrats are marked with a spiral and have an influence level of 3, and a slightly larger identity repertoire than top echelon bureaucrats—reflecting the regionally prevalent identities as well as national identities. Lower echelon bureaucrats, those with influence level 2, have within their repertoires both regionally prevalent and parochial identities in their region along with the three national identities. Thus, for example, lower echelon national bureaucrats in the northeast (upper right) quadrant have regionally prevalent identities 3 and 15 in their repertoire, along with a less prominent “parochial” identity, identity 9, and all three national identities 4, 5, and 13.

Beita was produced as a composite rendering of a multinational or multiethnic country, corresponding directly to no one particular country but containing common aspects of many. In

quadrants northeast (NE) and southwest (SW) regionally prevalent identities have separate small authority structures. These can be identified as local arrays of bureaucrats activated on colors associated with regionally prevalent identities—bureaucrats whose loyalties to the central state are reflected in the presence of national identities in their repertoires even as they begin Beita histories activated on their particular ethnic identity. The intent in these quadrants was to model relationships of multinational democracy based on principles of federalism and/or multicultural liberalism. Thus national identities were included within the repertoires of both bureaucrats and ordinary inhabitants, regardless of their activation on more particularist identities or the local prevalence of such identities within the repertoires of agents in that region. The radiating web of the national bureaucracy in each of these quadrants is substantial, though not as dense as in the state's "national core" in the northwest. The tolerant and accepting relationship between the national state and the ethnic groups in NE and SW is also reflected in the presence of regionally prominent ethnic identities in the repertoires of mid- and low echelon national bureaucrats in those regions.

But things are different in the southeast (SE). The southeast is modeled as a region controlled by the state, but inhabited by a disgruntled regional majority whose identity (10) is present in the repertoires of 79% of the agents in this quadrant. The fearful and alienated relations between the state and this group are reflected in the low activation rate of this identity¹⁰ and by the complete absence of identity 10 from the repertoires of the national bureaucrats stationed in SE. Beita also features a minority group in the SE region, associated with identity 16, that is historically distinct from and even antagonistic to the regionally dominant identity (10). As is quite typically the case, it is thus attractive as an ally against identity 10 by the national center. Reflecting the favor it enjoys from the regime, identity 16 has a very high activation rate (54% of agents in SE with identity 16 in their repertoire are activated on that identity at $t=0$). It also has a high rate of overlap with the incumbent national identity—identity 5. Indeed more

than 80% of SE agents activated on 16 have all three national identities present within their repertoires. By contrast, identity 16 is present within the repertoires of only 8% of SE agents activated on 10 at $t=0$.

As Beita moves forward in time the patterns of identity activation and hence the patterns of visible color across the landscape change. Individual cells change identity activation as a result of interactions with their neighbors (agents directly touching their sides or corners). Each agent registers the activated identities and influence levels of its neighbors, but not the composition of their repertoires. Simple calculations of relative “identity weight” lead each agent to either remain activated on its currently activated identity; rotate into activation an alternative identity from its repertoire; substitute an identity from outside its repertoire for one inside its repertoire; or, in cases of a fairly overwhelming discrepancy in favor of an identity not in its repertoire, actually substitute and activate on an identity previously absent from its repertoire. *Ceteris paribus*, activated identities favored by authority structures tend to produce clusters of agents who are activated on those identities. These clusters can begin with those agents in the neighborhood of the webs of “influential” agents who have that identity in their repertoire. The clusters can then expand to include agents who bring that identity into their repertoires after being surrounded or nearly surrounded by agents activated on that identity. For purposes of illustration, Figure 2 is provided showing a typical run, or history, of Beita at time step 50 ($t=50$).

[Figure 2 about here]

However, just as in the real world the origin of signals that shape the identity based behavior of people and groups is not wholly local, so too can agents in Beita (and in PS-I models in general) have access to some non-local information. At every point in time each identity is assigned a “bias,” that is to say a negative number, a positive number, or zero.¹¹ According to what can be thought of as a “mass media” mechanism, each agent is aware of these signals and how they change (though responsiveness to such signals can be adjusted within the model). Each

agent updates its activation by adding these signals to its calculations about local identity weights, thereby adapting to its environment by maintaining its currently activated identity, rotating into place an identity from its repertoire, or substituting an identity not in its repertoire for one that is already present, or activating on a newly substituted identity. Figure 3 displays all the identities present in the spectrum of Beita (that is, present as a subscribed identity in at least one agent).

[Figure 3 about here]

Each identity is labeled by number and color. The table also shows, for each identity, the bias assigned to it at time step 50. The assignment of biases is random, though for experimental purposes that randomness can be adjusted to introduce more or less volatility in the way the world is changing, a greater or smaller range within which it can change, and more or less predictability in the way it will change. At every even numbered time step each identity is eligible for the assignment of a new bias. In the Beita history from which these illustrations are taken, the volatility was set so that the probability of being eligible for a bias change at any one time step was .005% (with a bias range of between -2 and $+2$).¹²

Studying Secessionism with Beita

Secessionism among identity 10 agents in the southeast region is modeled in Beita as the emergence of boundaries within the state that separate a sizeable region dominated by identity 10 from the rest of the state—a region featuring substantial cultural homogeneity both in terms of activated and subscribed identities. Borders appear as some individual agents are transformed into immutable and inactive “border agents” (black squares). Such transformations can be considered “secessionist” activity. The results of various factors (such as institutional responsiveness, repression, devolution, etc.) on the occurrence of secessionism can then be investigated by adjusting those aspects of Beita and comparing the results by analyzing batches of 100 runs under otherwise tightly controlled conditions. Apart from studying secessionism (how

many border agents are produced in what regions), achievement of a minimum number of border agents combined with a sufficiently high level of activated homogeneity within the regions dominated by the secessionist group can be used as a measure of secession itself.

The rules governing the circumstances under which individual basic agents become border agents were designed to conform to basic and consensual understandings of secessionism as they appear in the scholarly literature. Indeed, very little is put into these rules that any scholarship on the subject challenges. They stipulate what may be considered “necessary” conditions for secessionism, whereas most of the literature on secession deals with circumstances sufficient to produce it or most likely to produce it.

The purpose of these rules is to create a polity, Beita, in which secession is possible, but where under typical conditions of governance and political relations, it does not occur.¹³ The rules can be thought of as translations of conditions that are broadly, if usually implicitly, accepted as necessary for significant signs of secessionism or separatism to appear. These conditions are:

- polarization or alienation of the potentially secessionist identity group from the dominant identity groups in the state;
- regional concentration of the identity on a scale that is not negligible when compared to the size of the entire state;
- some significant level of tension or disharmony in the relations between individuals expressing the dominant versus the “alienated” identity.

When conditions meeting each of these rules are present a low but significant probability is created that basic agents, whose local conditions and activated identities so qualify them, will transform into border agents.¹⁴ The rules governing conditions under which such behavior can occur thus pertain to both macro conditions of which the individual agents are unaware, and local conditions of which they are aware. They are designed to interact with the fundamental

constructivist rules of behavior that govern PS-I, to permit informative and theoretically responsible opportunities for testing competing ideas about secessionism.

More specifically, the rules we have implemented to govern the production of border agents can be stated, non-technically, as follows:

- 1) Size of a qualifying identity: Secession of the leading group in a society is excluded from these experiments insofar as the leading group is considered to be the identity activated at any particular time by a plurality of agents in the polity. Similarly, secessionism by very small groups within a state is deemed unlikely or impossible and is excluded. Accordingly, no agent is allowed to transform into a border agent unless the identity it is activated on is not the “dominant identity” (activated by a plurality of agents in the polity). On the other hand, no agent can transform into a border agent unless its activated identity is activated by at least 10% of the agents in the state.
- 2) Alienation: Secessionist activity can be expected to be unlikely or impossible to the extent that members of a potentially secessionist group also harbor the identity of the dominant group. Accordingly, no agent, at any particular time, can transform into a border agent if 20% or more of the agents activated on that identity at that time have the dominant identity within their repertoires.
- 3) Individual Action: Some otherwise qualifying agents are more likely than others to engage in secessionist activity, and those lacking very much contact with agents activated on identities other than their own can reasonably be expected to be less inclined to take the risks of secessionist action than liminal agents, exposed to other identities but not harboring those identities within their repertoires. Accordingly, no agent can transform into a border agent unless half or more of the agents it is in direct contact with are activated on an identity other than its own activated identity.

With these rules implemented for the operation of Beita, we proceeded to investigate the relationship among variables of interest with respect to secessionism and institutional schemes of repression, decentralization, responsiveness, autonomy, or devolution. This was done by comparing histories produced under slightly different conditions or with slight changes introduced into the polity to operationalize such institutional strategies.

Simulation Experiments

Several groups of simulation experiments designed to explore the relationship between institutions, ethno-political mobilization, and secessionism, were conducted from April to July of 2002. Each series of experiments focused on changing aspects of the regime bureaucracy in the SE region. The first series studied the effects of repression, modeled as increasing the range and density of the distribution of regime bureaucrats in SE. The second focused on the effects of increasing the responsiveness of the regime bureaucracy to the demands of the potentially secessionist identity. The third group of experiments was aimed at investigating the effect of increasing the representativeness of the regime bureaucrats, whether by increasing the proportion of existing bureaucrats expressing the potentially secessionist identity or by expanding the bureaucracy by adding networks of bureaucrats expressing that identity.

Each series of experiments entailed creation of distinctive versions of Beita—each captured in a different “snapshot.” Each snapshot featured a carefully controlled group of parameter settings and/or changes in the complexion of agents in SE. Our analysis compared the distributions of histories produced by incremental changes in these variables to the distribution of histories produced by the standard Beita landscape. Each unique version of “Beita” was used to produce 100 separate and unique histories—histories run through 508 time steps to time 508 (t=508).¹⁵ The uniqueness of each specific history was ensured by the application of a distinctive

stream of randomly generated “biases” affecting the sequence and extent of changes in the relative attractiveness of activating on different identities.¹⁶

In the first series of experiments, the effect of repression was studied by extending the size of the state bureaucracy by a share of its original size (25%; 50%; 75%; 100%). Newly created bureaucrats were endowed with the same identity complexion in their repertoires as the original regime bureaucrats. These manipulations produced 4 distinct versions of Beita at $t=0$, i.e. four different snapshots. Running each of these snapshots, each with a larger regime bureaucracy in SE, produced 400 histories (one set of 100 observations at $t=508$ for each of the four renderings of the regime bureaucracy in SE.)

In the second series of experiments we studied the effects of increasing bureaucratic responsiveness by adding identity 10 to the repertoires of increasing proportions (25%-100%) of regime bureaucrats in SE. These responsiveness operationalizations entailed use of 4 separate snapshots at $t=0$ and the generation of 400 histories, equaling 4 sets of 100 observations each.

The third series of experiments included simulations of (a) power-sharing and (b) the granting of different degrees of autonomy to the potentially secessionist identity. Power-sharing was operationalized by increasing the proportion (25%-100%) of SE regime bureaucrats instantiated as representative of the minority identity (identity 10). The effect of semi-autonomous institutions was studied by extending the size of the bureaucracy. In this set of experiments the existing regime bureaucracy in SE was unchanged, but increasingly substantial webs of bureaucrats were added to it. These added arrays were comprised of agents with identity 10 not only in their repertoires, but activated. Each of these new bureaucrats was also endowed, in its repertoire, with identity 5, the identity of the regime bureaucracy in SE and the dominant incumbent identity at $t=0$ in Beita. The four levels of manipulation (25%-100%) and two types of representativeness produced 800 histories, equaling 8 sets of 100 histories.¹⁷ Three dependent measures were developed to study the questions of interest.

First, the average number of agents activated on 10 was used as a measure of “*ethno-political mobilization*.” Our second dependent measure was the amount of “*secessionism*,” measured as the mean number of border agents across 100 histories of Beita for any one experimental condition. Third, we identified a subset of histories which in each condition was characterized by “*secession*.” Outcomes were coded as secession when they included a clearly demarcated and substantial zone (or zones) within SE—a zone or zones both heavily dominated by agents activated on identity 10 and separated from the central state by coherent though not necessarily fully closed boundaries of border agents. Figure 4 displays an example of secession (t=508) along with an example of a history at t=508 from the same group of Beita standard histories which features some secessionist activity, but is not coded as an instance of secession.¹⁸

[Figure 4 about here]

In the following sections we compare the means of our dependent measures associated with specific manipulations to the means obtained from analysis of the 100 histories produced with Beita standard (our baseline condition).¹⁹

Repression

We asked first about repression, about the effect of increasing the size of the regime bureaucracy in SE on ethno-political mobilization by identity 10. The data in Table 1 are the means taken from separate sets of 100 Beita histories using four different snapshots, with regime bureaucracies in SE that are, respectively, 25%, 50%, 75%, and 100% larger than the regime bureaucracy in SE within standard Beita. We see that *increased* repression, at every level of increase, significantly reduced public identification with the minority community.

[Table 1 about here]

Measured only in terms of reducing public expressions of attachment to the potentially secessionist identity—meaning increases in the pervasiveness of the regime bureaucracy—

repression did indeed work in Beita. This was not so clearly the case with regard to other measures of secessionism.

[Table 2 about here]

Comparing Tables 1, 2, and 3 we see that increasing repression reduced mobilization by agents expressing identity 10, but did nothing to reduce the amount of secessionist activity within that community. Despite a slight decline in secessionist activity registered in the most substantial manipulation conditions, increasing repression did not significantly reduce secessionist activity when compared to the baseline.²⁰ To be sure, as indicated in Table 3, when the threat of secessionism to the central state is measured in terms of the frequency of actual secession, repression did seem to reduce its occurrence. This reduction approached statistical significance at the 75% level (8 secessions) and was highly significant when the size of the original bureaucracy was doubled.

[Table 3 about here]

Responsiveness

Responsiveness experiments with Beita were designed to help us investigate the implications of what may be viewed as the opposite of repression for ethno-political mobilization, secessionism, and secession. How would changes in the bureaucracy to make it more responsive to the potentially secessionist identity affect patterns of mobilization, secessionism, and secession on the part of the potentially secessionist identity group in SE? As discussed in the introduction, various specific schemes of institutional reform are quite commonly recommended to reduce the threat of confrontation and secessionist struggles in the kind of situations Beita was designed to simulate.

The manipulations used to produce the data displayed in Tables 4, 5, and 6 entailed increasing the sensitivity, or “responsiveness,” of the regime. Responsiveness was simulated by inserting identity 10 into the repertoires of the 58 regime bureaucrats originally present in the

baseline setting of Beita. The four levels of the manipulation steadily increased the number of regime bureaucrats with identity 10 in their repertoire: 15 bureaucrats with identity 10 at the 25% manipulation level, 29 at 50%, 44 at 75% and the entire bureaucracy (58) at the highest level of the manipulation (100%).²¹ In effect, this manipulation increased the propensity of regime bureaucrats to themselves activate on identity 10.

Table 4 displays the results of experiments with respect to the amount of ethno-political mobilization. The data suggest that increasing responsiveness significantly increased the prevalence of identity 10 among activated agents in SE, *i.e.* increased the amount of ethno-political mobilization on the part of the potentially secessionist identity. The average number of Beita inhabitants publicly expressing identification with identity 10 increased from a baseline of 398.71, when no regime bureaucrats were responsive, to 430.18 when 100% of the state bureaucrats were responsive.

[Table 4 about here]

While these results may disappoint those who would hope to reduce tendencies toward mobilization of competing ethnic identities by strategies of bureaucratic cooptation, they support those who contend that offering positions of power in the state's authority structure to regionally predominant minority groups is likely to result in more robust mobilizations. On the other hand, results from our experiments concerning the likelihood of secessionism (as opposed to the extent of ethno-political mobilization) seem contrary to the worst fears of those who believe that any concessions to a potentially secessionist group would lead the state down a slippery slope toward secession.

Table 5 presents data about effect of responsiveness changes in the regime bureaucracy on the average amount of secessionist activity. Simply increasing the responsiveness of the regime bureaucracy, even of the entire bureaucracy in SE, does very little in terms of changing

secessionist activity. Though a steady reduction is apparent in the data, these differences are not statistically significant.

[Table 5 about here]

The results of our study of the effect of responsiveness on levels of secessionism do not provide support for those who may believe that simply reforming the governing bureaucracy to be more attentive to the concerns of a disaffected minority can reduce the likely incidence of secessionist activity. But nor did this manipulation increase secessionist activity. Indeed, we did not observe a statistically significant reduction in the amount of secessionist activity in any of the responsive conditions. On the other hand, we can see from the data in Table 6 that training the entire bureaucracy to respond to the aspirations or affiliative demands of SE inhabitants, was associated with a non-significant reduction in the rate of secession (13 out of 100 histories compared to 18 out of 100 in the baseline).

[Table 6 about here]

Power-Sharing and Building Semi-Autonomous Institutions

Most proposals for mitigating tendencies toward secessionism and confrontations with regional minorities seeking national self-determination entail more than reforming or reorienting the existing authority structure, whether through democratization or affirmative action programs. Almost all schemes for devolving power to potentially secessionist groups entail an increase in the number of power-holders publicly representing the identity of the disaffected group. This can be achieved in either of two ways: (a) through power-sharing by recruiting representatives of the minority group for positions within the existing authority structure, or (b) by building semi-autonomous institutions designed to provide representation, expression, access, resources, and symbolic satisfaction to members of the out-group. The claim is that by increasing the representativeness and/or scope of institutions exercising power over the lives of members of the

potentially secessionist group, challenges to the regime can be avoided. Ethno-political mobilization that otherwise might lead to confrontation with the regime would instead be channeled within boundaries that include loyalty to the central state and acceptance of the integration of the region within its jurisdiction.

Tables 7, 8, and 9 present data from experiments designed to explore these ideas, using the operationalizations described earlier for the simulation of power-sharing and semi-autonomous institutions. The “sharing” of power and the “semi” autonomous aspect of these institutions is expressed in the fact that all bureaucrats, whether activated on 10 or not, have within their repertoires at the beginning of these histories identity 5—the dominant governing identity, that most prominently associated with the central state. Table 7 shows that the mobilization of identity 10 increased significantly as power-sharing increased.

[Table 7 about here]

Even small increases in the representativeness of the existing regime bureaucracy (25%-50%) were associated with substantial increases in ethno-political mobilization by identity 10. In the 75% and 100% conditions, the levels of public identification with identity 10 registered were especially high. The picture here is of a small bureaucracy, formerly domineering and rigid, that becomes not only sensitive to, but representative of and controlled by, agents identifying with the disaffected group. The result is widespread mobilization of the latent regionally dominant identity. Similar results, although somewhat smaller in magnitude, were found when semi-autonomous institutions were introduced.

What we see in Table 8 is striking evidence of the constraining effect of sharing power or building semi-autonomous institutions on secessionist activity. When agents expressing the regionally dominant identity were given real opportunities to exercise public power, secessionism was reduced even in the midst of robust increases in size of the population actively associating themselves with that identity (Table 7). Interestingly, under conditions of “tokenism,” when

only 50% or fewer of existing bureaucrats display identity 10, power-sharing did not diminish secessionist activity. However, a significant decline in secessionism did appear under power-sharing arrangements when a clear majority of the regime bureaucrats in SE began Beita histories by publicly expressing their attachment to identity 10. In contrast, the building of semi-autonomous institutions effectively reduced secessionist activity even under minimal devolution of power (25%).

[Table 8 about here]

The data in Table 9, describing frequency of secession itself, mostly recapitulate the results reported in Table 8 regarding the reduction of secessionism associated with power-sharing and building semi-autonomous institutions. It is worth emphasizing the support which this data would seem to offer to the argument that opening up very substantial opportunities for participation in local governance, while tending to increase rates of ethno-political mobilization, can greatly reduce secessionism and make secession itself extremely unlikely.

[Table 9 about here]

Discussion and Conclusion

Overall our results help explain why scholarship in this area has produced many seemingly conflicting claims. Even when, as in the experiments reported here, key variables (such as international involvement, relative economic position of the potentially secessionist region, and distinctiveness of group identity) are held constant, the data often suggest non-linear patterns. On the other hand, our results also encourage support for the analyses of researchers such as Hechter and Kohli. These scholars discern tradeoffs that may be expected in choosing between repressive policies or policies that emphasize responsiveness and representation. The former are likely to produce short-term quiescence and longer term threats of secessionism and secession, while the latter are likely to lead to wider and noisier mobilizations, but substantially lower threats of secessionism and, particularly, of secession.

It is worth reviewing the results of these experiments in terms of the three outcome variables of interest: extent of ethno-political mobilization, amount of secessionism, and frequency of secession.

Mobilization: The analyses of those such as Laitin, Lustick, Adam, and others who have argued or implied that repression, domination, or control can work receive strong support insofar as limiting amounts of ethno-political mobilization is concerned. Indeed, not only do rates of mobilization decrease steadily as the size of the control apparatus increases, but imposing limits on the responsiveness of the regime bureaucracy has similar but more subdued effects. Indeed increasing responsiveness clearly encourages wider mobilizations at levels only exceeded by the powerful effects of increasing either the representativeness of the existing regime bureaucracy or the size of a semi-autonomous bureaucratic apparatus staffed by representatives of the latently secessionist identity group. These findings thus also support at least parts of the arguments of scholars such as Snyder who warn of the energizing effects of democratization for patterns of nationalist or ethno-political mobilization.

To be sure, our model does not distinguish between violent and non-violent forms of mobilization. If one imagines this mobilization as violent, then regardless of the longer term consequences, regimes may find it advisable to engage in repressive or control policies, avoiding responsiveness or representativeness in the governance of a regionally concentrated, potentially secessionist minority, if only to avoid violent confrontations. However, if one imagines that secessionist struggles, *per se*, are more likely to be violent than others, then in order to judge the attractiveness or necessity of such policies a regime would also have to consider their effect on the impetus given among those mobilized to engage in secessionist activity.

Secessionism: Repression, *i.e.* strengthening a rigid and unresponsive regime bureaucracy, may decrease mobilization by the latently secessionist identity, but it does not significantly decrease (nor increase) secessionist activity within that community. There is no

strong support in our experiments, in other words, for a direct relationship between increased repression and the robustness of secessionist movements.

In contrast, increasing representativeness encouraging active and public participation by the potentially secessionist, regionally concentrated minority did in fact decrease the secessionist activity. Particularly strong effects in this direction followed the creation of semi-autonomous governing structures. Low levels of power-sharing, that is small or moderate increases in the representativeness of the existing bureaucracy, have no significant effect on the amount of secessionist activity. But with the regime bureaucracy in the less well-integrated region fully or nearly fully staffed by representatives of the latently secessionist minority, we registered significant decreases in secessionist activity. Of particular interest, when the regime maintained its existing bureaucratic array and then added even a small sized bureaucracy staffed by representatives of the regionally dominant identity, secessionist activity by this group decreased quite sharply.

These findings lend support to scholars such as McGarry and O'Leary, Lijphart, Tiryakian, Lapidoth, Danspeckgruber, and Horowitz, who have argued in favor of self-administration, limited autonomy, or other schemes to create settings for the exercise of public power by representatives of potentially secessionist groups as a means of preventing the development of secessionist struggles. Ready to accept higher levels of ethno-political mobilization, these authors imagine that with semi-autonomous institutions to channel that mobilization, secessionist struggles can be averted. The mechanisms which are understood to produce this combination of effects for these authors vary and are not always clearly specified. An advantage of the agent-based simulation approach is that we can understand how this seemingly odd combination of effects arise from the simple assumptions made about the conditions widely believed to contribute to secessionism.

As the proportion of the population that publicly identifies with identity 10 in SE increases, larger numbers of those who come to activate on that identity also have within their repertoires the identities they were previously activated on, including the originally governing identity (5) or other identities which may become dominant in Beita. As these agents are integrated into the ethno-politically mobilized group, a larger proportion of the entire group comes to contain within their individual repertoires the dominant identity in Beita—usually identity 5. This reduces the likelihood of secessionist activity (see above, rule 2, re “alienation”). Also, as identity 10 becomes the prevailing activated identity in SE, the number of agents publicly expressing their 10 identity, and who find themselves in neighborhoods inhabited predominantly by agents activated on identity 10, increases. In light of rule 3, governing individual action and contact with “others,” this is also likely to reduce secessionist activity. Representative institutions, even if not fully autonomous, thus seem to inhibit secessionism. They do so by reducing the overall amount of alienation or polarization between regime dominant and regionally dominant identity groups and by reducing the likelihood that individuals identifying with the regionally dominant group will be in tension with the majority of those with whom they have direct contact.

Secession: Increasing the size of a repressive bureaucracy did reduce the frequency of secession itself, but only when the regime was willing to invest the resources necessary to double the size of the original bureaucracy in the SE region did the changes reach statistical significance. Although increasing responsiveness of the existing bureaucracy did not decrease the frequency of secession, significant decreases were achieved by increasing power sharing or by erecting semi-autonomous institutions that complemented the existing regime-identity dominated bureaucracy.

There are two reasons why - from the point of view of the regime – sharing power or building semi-autonomous institutions for the regionally concentrated and disaffected minority group may be, *ceteris paribus*, a more attractive approach than repression. First, decreases in

secession frequency did not require 100% representativeness in the existing bureaucracy or 100% expansion in the size of the bureaucracy. This contrasts with the need to expand the existing bureaucracy by 100% to achieve comparable results via repression. Second, it may reasonably be assumed that under conditions of both power sharing and creation of a subsidiary bureaucracy fully staffed by agents activated on identity 10, revenues from taxation would be more dependable and more robust than under the repression condition. On the other side of the political ledger, of course, may be the regime's need to accept, in the absence of greatly increased repression, higher levels of ethno-political mobilization by the potentially disaffected minority—increases which are indeed associated with maintaining a more representative bureaucracy. It is striking, however, that even a relatively small investment in the development of minority self-governance through semi-autonomous institutions reduced the probability that even the larger mobilizations associated with this condition resulted in a break from the state.

Looking across all of our conditions and dependent measures it appears that the broadest and most compelling finding emerging from our data is that explanations for variation in amounts of ethno-political mobilization, even by members of communities that seem primed for secessionism, cannot be expected to correspond to explanations for patterns in the variation of amounts of secessionism or outright secession. This result not only helps explain the difficulty scholars have had making sense of cumulative findings, but also justifies the search for techniques of investigation permitting more precision and control in the examination of the effects of specific variables on patterns of outcomes. In part it was the search for such techniques, by scholars who emphasize process-tracing in small-N studies and by those who search for their insights through the construction and refinement of large data bases, that inspired our effort to deploy agent-based computer simulation modeling to this problem.

As there are limits to other approaches, so too are their limits to agent-based modeling simulation in general, and PS-I in particular. We as yet have no reliable method for portraying a

simulation of Beita of a particular length as corresponding to a particularly sized time-slice in a country comparable to Beita in the real world. We are in the process of integrating other key variables of interest to scholars in this area into Beita and our study of its dynamics, but as we do so we run the risk of creating, in our virtual space, the intractably entangled and complex causal relationships that make it difficult to isolate effects in the real world. The variable appearance of violence as an aspect of regime repression or of ethno-political mobilization and of secessionist struggles is of great interest, but is not readily captured in a computational model such as Beita, based as it is on a cellular automata design. It is our hope, however, that having demonstrated the usefulness of a user-friendly platform such as PS-I, researchers will add this technique to their methodological quiver, whether as an “idea pump” or as a method for exploring the logic of their arguments independent of the accidents of available data and confounding circumstances that may be associated with particular cases or data bases.

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Notes

¹ Snyder makes a similar argument about patterns of political violence and secessionism in India and the “perils of pluralism and power-sharing” in Rwanda and Burundi. See also Saideman (1998), McGarry, John and Brendan O’Leary (1994, 94), Cornell (2002).

² For broader consideration of strategies of control and domination see McGarry and O’Leary (1993, 23-26), Lustick (1979 and 1980), Yiftachel (2000), Heribert (1974), and Fearon and Laitin (2000), Fearon (1998).

³ Emphasis in the original.

⁴ For similarly nuanced views on the difficulty of making linear predictions about the effect on secessionism of more inclusive electoral arrangements see Reilly and Reynolds (1999), Scarritt, McMillan, and Mozaffar (2001), and Crawford (1998).

⁵ This is the case even as scholars pick and choose from an array of historical accounts that is considerably more differentiated than whatever it is that those accounts are seeking to describe (Lustick 1996).

⁶ Important work is underway to improve the reliability of these techniques. See: Doyle and Sambanis (2000); Wilkinson (2000); Laitin (2000); Laitin and Posner (2001); Wilkinson (2001).

⁷ By keeping the initial conditions and pattern of perturbations constant, and changing the algorithms or micro-rules controlling agent behavior, problematic aspects of the theories of identity change, political behavior, and elite recruitment these rules reflect can be tested as well.

⁸ Lustick (2002a) presents a detailed discussion of PS-I and its capacities. Lustick and his collaborators describe kinds of micro-rules that govern agents in PS-I, and in the ABIR family of models developed within the PS-I framework, see Lustick (2000), Lustick and Miodownik (2000) and (2002).

⁹ Agents can be imagined as modeling individuals, families, villages, or any unit of political aggregation that may seem appropriate.

¹⁰ In quadrant IV identity 10 is activated at $t=0$ by 12% of the agents in quadrant IV with that identity in their repertoire compared, for example, to an activation rate of 24% for identity 15 in quadrant II, where it is a regionally prominent identity.

¹¹ A bias of “+1” for example would count in the identity weight calculation of an agent as much as would one extra basic agent in its neighborhood activated on that identity.

¹² Predictability is a measure, assuming that a change of bias assignment takes place, of how likely it is that that change will entail a move of more than one integer step away from its original bias assignment. As with most experiments reported here, this illustrative history was set at a low predictability setting, such that large bias shifts were just as likely as small ones.

¹³ Indeed in the thousands of histories we have generated, secession by groups other than identity ten, or in regions other than the southeast, where identity ten is concentrated, have almost never been observed.

¹⁴ In the experiments reported in this paper the probability of an otherwise qualifying basic agent turning into a border agent was 20% per time step in which the basic agent remained qualified. This probability can easily be adjusted for experimental purposes.

¹⁵ The length of each history is considered to be 500 time steps. Our experience with Beita strongly suggests that only rarely would extending the examination of dynamic processes beyond this point yield statistically different results. The reason observations are conducted at $t=508$ and not 500, is that each run includes eight initial time steps during which the likelihood of change of a bias value associated with any given identity is very high (50% as opposed to .005% during the history itself). This has the effect of “scrambling” the biases and allowing the history to begin “in media res,” rather than from an artificially “calm” position. Other settings that remained constant through all manipulations as well as standard Beita included a bias range of $-2,+2$, a moderated jump factor of 10000 (meaning the likelihood of a bias changing from one value to another was equal, regardless of the size of the increment entailed in that change), and a sight radius for all

agents of 1, meaning that all agents could see the activated identities of the eight agents adjacent to them and no others.

¹⁶ Given exactly the same parameter settings, exactly the same array of agents operating by the same rules, given the same complexion of identities in agent repertoires, and assuming all agents are activated on the same identities, applying any particular stream of bias values will always produce exactly the same (unique) history. Experiments reported here are based on running “treated” landscapes 100 times using the same set of 100 randomly generated streams of bias values and comparing the distribution of results to the histories generated from the standard Beita landscape when those same streams of biases were applied.

¹⁷ Visual representations of the SE region after each of the manipulations is available for download at http://www.polisci.upenn.edu/abir/_private/publications/psi-autonlusmiodeidel_sefig.doc All the snapshots that were used in the different experiments are available for replication purposes at http://www.polisci.upenn.edu/abir/_private/publications/psi-autonlusmiodeidel_snap.zip

¹⁸ Specifically, a history was treated as secession if at $t=508$, at least 84 border agents were present in SE combined with an average tension of agents activated on ten of below .8—meaning that on average agents activated on 10 had fewer than 1 agent in their neighborhood activated on an identity other than ten. These values were chosen as benchmarks which together rather clearly separate the group of outcomes with the features of secession listed above from those which do not. As might be expected the three dependent measurements correlate significantly with one another. (a) correlation between ethnic mobilization and secession $r= .43$, (b) correlation between ethnic mobilization and amount of secessionist activity $r= .68$, (c) correlation between amount of secessionist activity and secession $r= .78$. Nonetheless, tolerance levels fall within a widely acceptable range (0.4 or higher).

¹⁹ Two types of tests were used: distributions of the dichotomous variable (Secession) were compared using McNemar's chi-square test for nonparametric distributions. The means of the continuous variables: ethno-political mobilization and secessionism (number of agents activated on 10 and number of border agent) were studied using a Paired T-test. In order to avoid the flagging of significance by chance we adopted conservative measures of significance according to which we identified the 0.01 as a threshold for significance and 0.005 and 0.001 as thresholds for strong statistical significance. In comparing the results against the baseline we studied the differences across the manipulation types (comparing results within each level), as well as the results for each manipulation (comparing results across levels of the manipulation). We will report the results of these tests when appropriate.

²⁰ It is important to emphasize that secessionism, measured as the mean number of border agents within the SE region over 100 histories for any given manipulation, describes an attribute of the set of 100 histories and not of particular histories. It is therefore justifiable to use the number of border agents as a measure of secessionism even though the data are "clumped" within the subset of histories which featured any secessionism at all.

²¹ Thresholds for identity "rotation" and "substitution" refer to the readiness of an agent to respond to the decreasing relative attractiveness of its activated identity by "rotating" into activation an alternative identity within its repertoire or "substituting" a new identity for an identity present in its repertoire.

²² We have had some success, however, in modeling the immediate consequences of violence, which from the point of view of political analysis, maybe more important. See Lustick (2002b).

Figure 1: Beita—A Virtual Multi-ethnic State

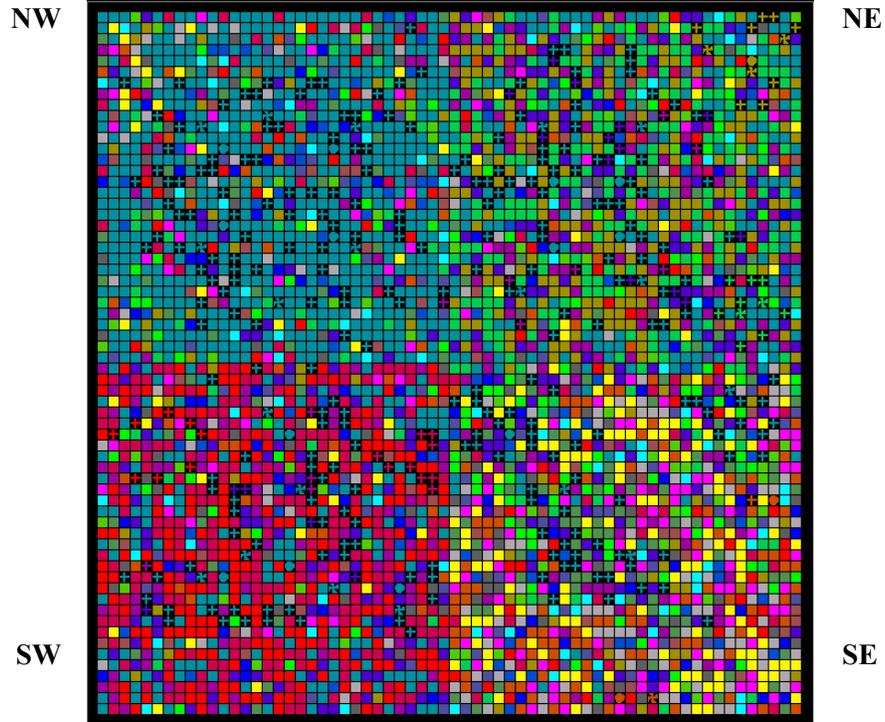


Figure 2: Beita Baseline – Typical run (time=50)

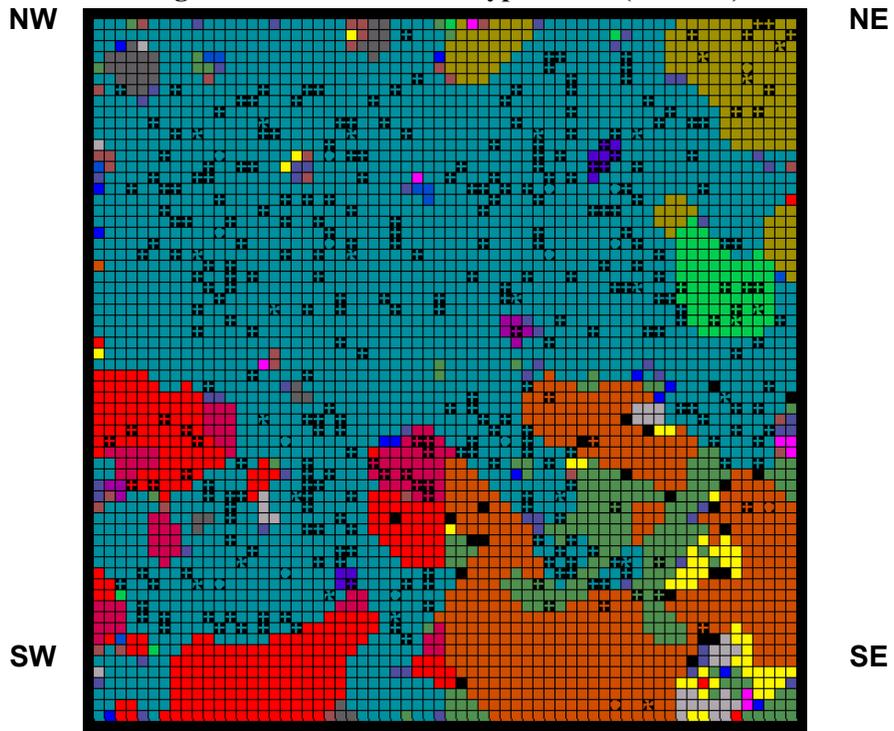


Figure 3: Beita Identity Display

	activated	subscribed	tension	bias	color
0	295	1489	450	0	red
1	0	1324	0	0	green
2	13	451	91	1	blue
3	173	1471	178	1	olive
4	9	2600	44	-2	purple
5	2498	3210	1526	-1	teal
6	34	993	120	-2	grey
7	28	997	174	1	brown
8	53	447	338	2	dark blue
9	193	923	561	2	dark green
10	500	1173	481	2	orange
11	91	1442	260	0	magenta
12	0	368	0	0	light green
13	12	2676	52	-2	dark purple
14	8	460	53	0	blue
15	76	1466	131	2	green
16	50	532	224	0	yellow
17	8	508	47	2	pink
18	0	414	0	-1	cyan
19	31	533	126	1	grey

Figure 4: Beita Baseline: Secessionism and Secession (time=508)

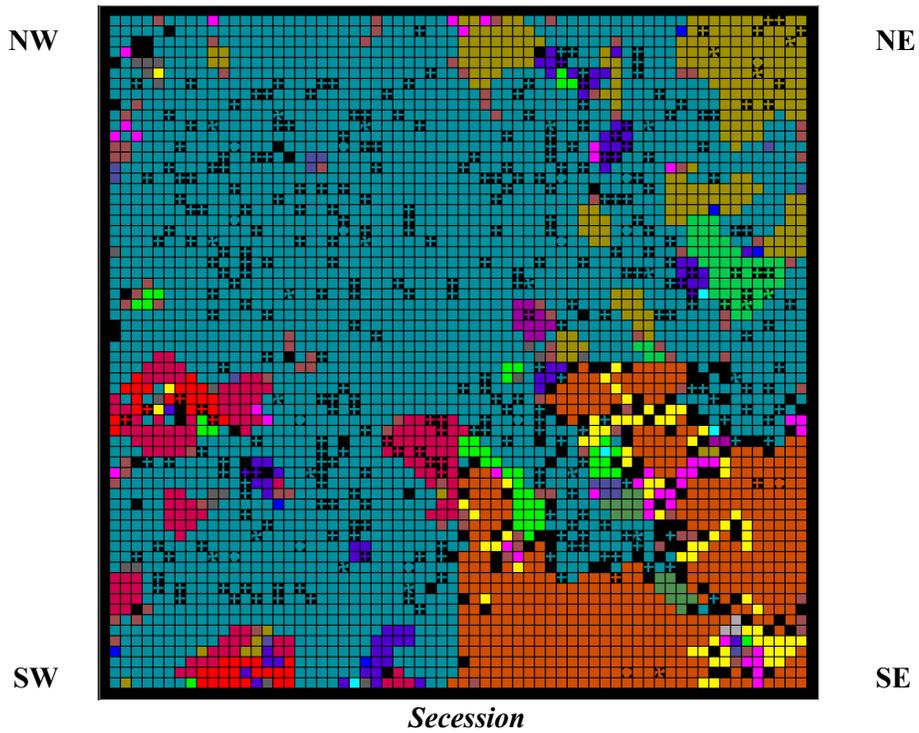
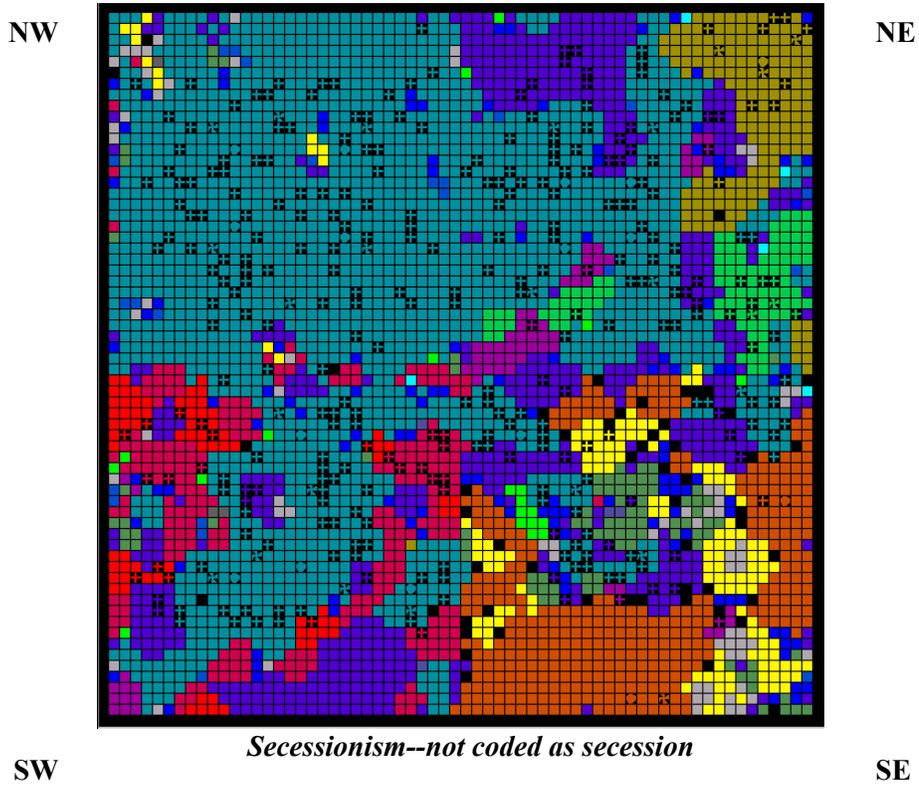


Table 1: Amount of Ethno-political Mobilization

<i>Agents Activated on ID 10 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Extensions of a Repressive Bureaucracy	359.67***	324.95***	302.93***	279.26***
*p<.01 **p<.005 ***p<.001				Baseline = 398.71

Table 2: Amount of Secessionist Activity

<i>Border Agents at t=508 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Extensions of a Repressive Bureaucracy	35.29	34.44	30.04	27.07
*p<.01 **p<.005 ***p<.001				Baseline = 34.95

Table 3: Frequency of Secession

<i>Secessions per 100 histories</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Extensions of a Repressive Bureaucracy	15	14	8	1***
*p<.01 **p<.005 ***p<.001				Baseline = 18

Table 4: Amount of Ethno-political Mobilization with Greater Bureaucratic Responsiveness

<i>Agents Activated on ID 10 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Responsive	404.33***	416.31***	422.49***	430.18***
*p<.01 **p<.005 ***p<.001				Baseline = 398.71

Table 5: Amount of Secessionist Activity with Greater Bureaucratic Responsiveness

<i>Border Agents at t=508 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Responsive	35.78	33.71	33.36	31.18
*p<.01 **p<.005 ***p<.001				Baseline = 34.95

Table 6: Frequency of Secession with Greater Bureaucratic Responsiveness

<i>Secessions per 100 histories</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Responsive	17	14	14	13
*p<.01 **p<.005 ***p<.001				Baseline = 18

Table 7: Amount of Ethno-political Mobilization with Power Sharing and Semi-Autonomous Institutions

<i>Agents Activated on ID 10 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Power Sharing (Increasing Representativeness of Existing Bureaucracy)	464.84***	549.76***	693.81***	736.35***
Semi-Autonomous Institutions (Increasing Size of Added, Representative Bureaucracy)	488.87***	521.75***	567.10***	583.75***
*p<.01 **p<.005 ***p<.001				Baseline = 398.71

Table 8: Amount of Secessionist Activity with Power Sharing and Semi-Autonomous Institutions

<i>Border Agents at t=508 (mean)</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Power Sharing (Increasing Representativeness of Existing Bureaucracy)	37.76	37.60	7.24***	0.97***
Semi-Autonomous Institutions (Increasing Size of Added, Representative Bureaucracy)	26.10**	16.27***	6.04***	1.42***
*p<.01 **p<.005 ***p<.001				Baseline = 34.95

Table 9: Frequency of Secession with Power Sharing and Semi-Autonomous Institutions

<i>Secessions per 100 histories</i>	<i>Size of the Manipulation</i>			
	25%	50%	75%	100%
Power Sharing (Increasing Representativeness of Existing Bureaucracy)	15	9	0***	0***
Semi-Autonomous Institutions (Increasing Size of Added, Representative Bureaucracy)	6**	1***	0***	0***
*p<.01 **p<.005 ***p<.001				Baseline = 18