

Constructivist Theories of Ethnic Politics

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Deploying Constructivism for the Analysis of Rare Events

How Possible Is the Emergence of "Punjabistan"?

IAN S. LUSTICK

The purpose of this volume is to demonstrate that a rigorous conceptual framework can enable constructivist insights to be deployed for the solution of a variety of theoretical and empirical problems. In this chapter I offer a use case in which the framework set forth by the editor, if not the exact details of its entire vocabulary, is employed to solve a difficult empirical and policy-relevant problem. The general problem involved is to evaluate a future for Pakistan involving the secession of its Punjabi core—a future whose probability experts have had difficulty assessing. Since secession is itself a rare event, and secession of the center an even rarer event, data relevant to addressing this problem must be generated by a computer simulation model designed and implemented in conformance with available social theories, including constructivist theory, along with information about Pakistani society relevant to the categories of those theories. The thrust of this chapter is to demonstrate that by integrating constructivist approaches to political contestation, via the framework offered in this volume, with specific knowledge of a complex and important case—the future of Punjabi-dominated Pakistan—an agent-based modeling approach can be used to analyze the conditions under which secession of the center can take place and to estimate its likelihood.

In the study of secession, most analyses of regionally concentrated ethnic demographics consider problematic peripheries from the point of view of the

I am especially grateful for the assistance of Kaija Schilde in the preparation of this chapter. Important contributions to the development of the VirPak model and to the underlying software were made by Vladimir Dergachev, Ben Eidelson, Quratul Ann Malik, Dan Miodownik, Vali Nasr, and Mathew Tubin. I also wish to thank the members of the CAEG group and of the Laboratory in Comparative Ethnic Processes for their helpful comments. Partial support for this project was received from the National Science Foundation, Award No. 0218397. A somewhat different version of this chapter appeared in Lustick 2011.

center. Usually one region, commonly containing or representing a politically dominant cultural formation, is identified as the core of the national unit and as in control of the central state. The political history of the country is then told as an account of how center relations with peripheries have been managed or, often, how the boundaries marking those peripheries (regional, social, cultural, or economic) were rendered irrelevant and/or invisible. Such an orientation follows a solid tradition of understanding large states as built up from small but powerful cores as a result of centripetal political and military competitions of aggrandizement, consolidation, and self-protection against equally expansion prone neighbors (see, for example, Pounds and Ball 1964; Gourevitch 1979). Economic theories about the size of states generally begin with an image of a central geographic location figured as the capital city. The size of the state is then explained or predicted as a function of the trade-off between the center's ability to exploit economies of scale across a large area and the costs the center must pay, increasing with distance along the peripheries, to maintain the stability of its authority in those regions.¹

Against this characteristic narrative, the problem of "secession" emerges as a centrifugal force that threatens the center with the loss of resources assumed to be accessible to it through control of individual peripheries. Whether the calculus is strategic, economic, or political, the often unstated argument is that bigger is better, if not because of the possibilities of establishing a larger resource base and domestic market, then because of the beneficial terms of trade the center can establish and maintain with the peripheries. States, dominated by core regions and groups, are expected to treat secessionism as anathema. Generally speaking, that is the case. The United Nations, as an organization of states, opposes virtually all secessionist movements within the borders of its members. The same is true of other interstate organizations.

However, states sometimes do decide to shrink. Imperial states may take decades or even centuries to decide that peripheries such as colonies are more trouble than they are worth. The standard finding in studies of decolonization is precisely that. Cost-benefit calculations by experts in the imperial center almost always reveal the colony to be a net drag on center resources. But such calculations themselves do not predict the timing of decolonization. Rather, it is the appearance of cost-benefit calculations as dominant considerations that predicts the timing of decolonization. The usual irrelevance of such calculations is almost always due to the importance of political, cultural, psychological, or ideological principles associated with the imperial framework within which the colony is ruled. It is institutional lag, not efficient exploitation, which tends to delay rational steps toward "rightsizing" states by making it difficult for imperial state elites to treat their cost-benefit calculations as decisive.

¹ For an example of this approach that includes a strong discussion of previous efforts, see Alesina and Spolare 2003.

Yet there are cases in which the political core of a state, encompassing dominant institutions, preponderant economic power, and cultural integrity, does choose to dispose of peripheral regions and peoples. Some of these cases—Rome under Hadrian withdrawing from Mesopotamia and Scotland, Britain under Lloyd George relinquishing the south of Ireland, France under de Gaulle extracting itself from Algeria—are of spectacular interest since the drama of “contracting” a state to preserve its character is a political achievement of the first order.²

However, the theoretical target of this chapter is more specific. Instead of considering the general category of state contraction, this chapter focuses on one type of state contraction known, in the rare instances in which it is the direct object of analysis, as “secession of the center.” Let us consider state contraction as the purposive abandonment of a central state’s rule over a portion of its populated territory that does not arise as a result of the external application of force *maejure*. Standardly, such decisions would be observed, whether in imperial or national contexts, in response to a long and difficult struggle by discontented elites and masses in the peripheral region for autonomy or independence. In contrast to this standard story of state contraction as a response to a struggle originating from the periphery, secession of the center is state contraction initiated by elites in the core of the state as a result of conditions, calculations, or circumstances not driven primarily by demands from its peripheries for independence.

1. The Notion of Secession of the Center

The notion of secession of the center figures in accounts of the emergence of Singapore as an independent state from the Malaysian Federation in 1965 that emphasize the extent to which the initiative for that separation came from Malaysia itself, impelled by its fear of the weight of Singaporean Chinese in its ethnic demography. For some students of the breakup of the Soviet Union, the change from Gorbachev’s clumsy efforts to reform the state while keeping it intact was replaced by a Yeltsin strategy based, really, if not explicitly, on Russian abandonment of the other Republics—a secession of the center camouflaged via the “Commonwealth of Independent States” as Moscow’s loss of control over a process of radical decentralization of power.³ The breakup of Czechoslovakia is analyzed quite persuasively as triggered by a package of reforms imposed by a

² For an extended theoretical treatment and empirical exploration of a model of state contraction and expansion, see Lustick 1993; and O’Leary, Callaghy, and Lustick 2002.

³ On Russia’s secession from the Soviet Union, see Hanson 1998 and Hale 2004a.

Czech Finance Minister, later Prime Minister, Václav Klaus that greatly reduced subsidies for the poorer Slovak region. Despite Slovak protests, the Czechs refused to compromise on these moves, which benefited the Czech core of the country. This led directly to the separation of the Czech Republic from Slovakia.⁴ The Northern League in Italy is an example of a more or less explicit movement to achieve the secession of the center—in this case the ambition of the economic and culturally confident northern regions of Italy to separate themselves from the poorer, strongly Catholic, agricultural, and less “European” south.

Aside from examples of actual secession of the center or movements dedicated to achieving that end, ideological and political projects envisioning such a process may also be noted. In South Africa, the architects of apartheid entertained the goal of uniting the English and the Afrikaners as whites, relegating Africans to unattractive areas of the country—the Bantustans, and then moving toward a secession of the White-dominated “center” from the non-white regions (Marx 1997). An ideology of secession of the center was also the cornerstone of Enoch Powell’s view that “England” was being ruined by the Empire it had built and the Commonwealth that succeeded it. In his famous “rivers of blood” speech in 1968 and in other writings and lectures he called for the re-emigration of immigrants, a radical transformation in England’s relations with Commonwealth states, and a reassertion of English and England as the cultural and geographic focus of political identification and political rule from London (Powell 1969).

2. Center Secession in Pakistan

The focus of this chapter is on prospects for and circumstances conducive toward secession of the center in Pakistan. In fact, it is Pakistan, and the subcontinent as a whole, where a kind of tradition of center secession can be said to have emerged. One important contemporary strand within the historiography about the partition of the subcontinent into “India” and “Pakistan” is the argument advanced by Ayesha Jalal in her biography of Pakistan’s founder, Mohammad Ali Jinnah, that a fundamental contributing factor, and perhaps a necessary element, in the emergence of Pakistan was the decision by Hindu elites associated with the Congress Party, including Gandhi, to abandon densely populated Muslim areas in west Punjab and east Bengal rather than pay the political price (cultural and political decentralization of some sort) that would have allowed the subcontinent to remain united (Markovits 2002). Indeed the division of Pakistan itself in 1971 can also be understood as an instance of secession of the center.

⁴ Hale 2004a, 183. Hale also provides an account of the demise of the short-lived Mali Federation in 1960, after the wealthy Senegalese core of the country declared its own independence, that fits, technically if not particularly tellingly, in this category.

Although usually described as a secessionist conflict mounted by Bengalis, supported by India, and featuring a brutal war in Bengal waged against secession by the Pakistani military, the separation of the East and its emergence as Bangladesh can just as accurately be seen as the secession of the wealthier Punjabi dominated center of the country, in the West, following the emergence of a Bengali political bloc powerful enough in organizational and demographic terms to win control of the government in Karachi/Islamabad.

The question posed in this chapter is a continuation of this South Asian "tradition." It was recently explicitly by one of the leading students of contemporary Pakistani politics, Stephen Philip Cohen. Cohen (2004) concludes his study, *The Idea of Pakistan*, with a consideration of various possible futures for the country, including its breakup due to ethnic rivalries and conflicts. Within this category Cohen asks: "Could Pakistan evolve into a Punjabistan—a nuclear-armed, smaller, more efficient and generally secure state?" (292). He answers this question summarily, with no extended analysis, and without a great deal of certainty. "This seems doubtful, but Punjab, like Russia, is the educationally and economically most advanced part of the country, and Punjabis regard themselves as culturally and civilizationally distinct, if not superior, to Sindhis, Baluch, and the tribals of the Northwest Frontier Province (NWFP) [in 2010 the province was renamed Khyber Pakhtunkhwa]" (Cohen 2004, 292).

Cohen ends his book with a variety of scenarios for the future of Pakistan. The emergence of "Punjabistan" is one of them. He describes it as "doubtful." But in fact he describes each of the scenarios he traces as unlikely. That is because, individually, they are all unlikely. Yet Pakistan will have some kind of future, and it might include Punjabistan. It is just that Cohen can only trace some trajectories that may be slightly less "doubtful" than others, and these, in his judgment, include the "Punjabistan" future.

In this chapter we seek to say more than Cohen was able to say about this topic. We can agree that this particular future is unlikely, but we would like to know the conditions that would increase the likelihood of that event. We would particularly like to know if certain configurations of political circumstances could be identified that, if not necessary or sufficient to produce a Punjabistan, would make that outcome more likely than not. We would like, in other words, to understand more about the mechanisms that might successfully push Punjabis toward the risky, unconventional, but perhaps ultimately satisfying step of abandoning the peripheries of Pakistan to embrace a firm domination of its core territory, population, and resources.

Of course if we had a general theory of secession from the center, based on strong patterns of documented relationships between potent explanatory variables and either the occurrence or non-occurrence of center secession, we could simply measure those variables in the Pakistan case, or prepare ourselves to measure them as Pakistan moves forward in time, in order to assess the changing probability of this kind of outcome. The problem with events as rare as center secession,

however, is that building up an N of cases sufficiently large to afford opportunities to achieve statistical significance for our findings would require stretching the concept, fuzzing its meaning, and including cases from great swaths of time and space that would introduce insuperable problems of comparability, data availability, and data reliability. The tiny number of outcomes also reduces to virtually nil the possibility that we might arrange a “natural experiment” in which one or two other cases could be intensively compared—cases similar enough to Pakistan to control for the variables not thought to be interesting, but different enough to allow both independent and dependent variables to vary instructively.

3. Agent-Based Modeling as a Strategy for Studying Rare Events

However, if the obstacles to analyzing this problem via aggregate data analysis or structured-focused comparison are insuperable, there is another way—computer-assisted agent-based modeling. That is the approach taken in this study. The thought experiments enabled by the rigor of computer simulations conducted on the same platform, with the same template, and with recorded streams of perturbations, achieve a level of discipline far beyond what can be achieved by the standard application of the researcher’s imagination via verbal models. Mentally conducted thought experiments cannot hold all theoretical commitments constant across mental exercises, cannot be sure that *ceteris paribus* assumptions are clearly stipulated and constant across exercises, and cannot register the systematic impact of accidental or highly contingent perturbations. With computer-assisted agent-based modeling simulation, however, the researcher can be certain that each unique trajectory of VirPak is fully consistent with the same theoretical assumptions and with identical judgments about the current state of affairs. Patterns of difference and similarity within the distribution of trajectories, or futures, produced then constitute the basis for inference about the forces and mechanisms operating, or likely to operate, in the Pakistan of the real world.

With this strategy in mind we implemented in a virtual space clear and widely accepted principles of political competition among boundedly rational groups and individuals via simple algorithms. We then feed into this model reasonable initial conditions (i.e., the best data presently available on Pakistan on distributions of influence and affiliation among Pakistanis) to create a “Virtual Pakistan”—VirPak. We then perturb dynamic simulation runs of VirPak with randomly generated, small exogenous shocks—contained in streams of changing signals regarding the general attractiveness or disutility of being publicly regarded as affiliated with a particular identity. These perturbations do not determine agent behavior, including activation, abandonment, or substitution of identities

within agent repertoires, but they are factored into agent calculations in simple ways consistent with standard principles of social psychology, bounded rationality, and constructivist identity theory.

Considering again the problem of center secession as a rare event, we could, by generating very large number of counterfactual futures, or histories, provide the database we needed to produce reasonable hypotheses about center secession in Pakistan and, by extension, about the broader category. In this chapter we concentrate only on 100 futures of VirPak generated with our "baseline" conditions (to be explained later).⁵ By analyzing this array of 100 trajectories, or futures, we

1. Determine if (given the assumptions built into the model) secessionist tendencies by Punjabis can exist;
2. Measure their relative strength and prevalence in comparison to other kinds of major political outcomes;
3. Gauge the relative frequency of successful center secessions; and
4. Identify the key mechanisms which are capable of and perhaps most likely to produce center secession by the Punjab.

Before accomplishing these tasks the anatomy of the VirPak model must be explained and, constrained by space limitations, justified. Following that account, some descriptive statistics will be provided describing the batch of 100 futures generated from with the model under "baseline" conditions, setting the stage for analysis of Punjabi secessionism and of those relatively few futures in which a "Punjabistan" quite clearly does emerge.⁶

4. The Anatomy of Virtual Pakistan

Considerably less is known about Pakistan than about other countries. Nonetheless, the amount that is reasonably well understood about Pakistan, and

⁵ Other work with VirPak involved producing batches of futures to compare with the baseline futures. These alternate batches reflected slightly different initial conditions or assumptions about the relative strength of different identities or types of political influence. Although not reported here, we understand them as sensitivity tests establishing the robustness and plausibility of our findings across a range of possible parameter settings.

⁶ As specific and even exotic as the category of "center secession" might be, it still needs to be disaggregated. One may wish to distinguish between the separation of the central state apparatus and the territories and populations it directly represents and/or controls from the separation of the central political, social, or cultural formation from the state apparatus that had served, but is no longer perceived to serve, the interests or aspirations of that group. The brief list of examples of center secession provided above includes both types. The simulation exercise reported here using Virtual Pakistan is focused only on the second type. I am indebted to Kaija Schilde for making this point clear to me.

the share of those most basic elements that are included in VirPak, are much greater than anything usually incorporated in agent-based models. This degree of detail is, of course, an order of magnitude greater than the amount incorporated in even the most complex closed-form models. The complexity of this model compared with those associated with closed-form approaches arises because the fundamental commitment in agent-based modeling is to start by implementing the simple things believed to be true about how politics works rather than by implementing rules for a model which we know cannot be true, but which offer the simplicity required for algebraic solution. With regard to VirPak, the complexity also arises because instead of modeling only what we imagine as the contingent aspects of an otherwise purely abstract entity, we have sought to model a real entity, all of whose theoretically relevant attributes were at least partially knowable.

Virtual Pakistan begins at time 0. Figure 12.1 shows the pattern of identity activation by agents in VirPak at $t = 0$ (see color plate 12.1). Once a simulation begins, the landscape quickly changes its appearance as agents rotate alternative identities into “activated” status, put previously activated identities into their repertoires, or substitute existing identities in their repertoires with newly available and more attractive identities.⁷ Specific differences are linked to the streams of small exogenous perturbations referred to above. We use the term “biases” to refer to the values assigned to identities, incorporated by agents in their calculation of “identity weights,” as they make their local updating decisions. Although all identities begin with a bias of “0,” in the initial eight-step period of each future we “scramble” the biases by shuffling assignments randomly and rapidly. These shifting bias assignments combine with local agent assessments of identity prevalence and activation opportunities to produce updating behavior by each agent every other time step. This “scramble” produces VirPak futures that each begin “*in media res*,” connected to the same initial template, but not moving forward from an artificially calm, “history-less” beginning of time. Figure 12.2 for one example of Virtual Pakistan, baseline condition, after an eight time step scramble (see color plate 12.2).

Individuals and the groups they comprise are represented by 3,208 agents located within the borders of Virtual Pakistan. VirPak’s overall configuration, the geographical patterns of concentration and proximity of various identity markers within it, along with the distribution of identity resources and political power with which agents in it have been endowed, is designed to capture key realities of contemporary Pakistan. Thus the shape of Virtual Pakistan corresponds

⁷ For an explanation of the fundamental operating rules of PS-I and of the terminology used to describe PS-I simulations, see Lustick 2002b. Detailed information and justification for the various trigger settings that determine the sensitivity of different kinds of agents to changes in their surroundings are not provided in this summary of Virtual Pakistan.

(roughly) to the geographical shape of real Pakistan, though some distortion is inevitable in this regard because of the drastic differences in population density in different regions of the country. The drivers of Virtual Pakistan are pressures by Pakistanis and Pakistani sub-communities to respond to opportunities and constraints imposed upon them.

Virtual Pakistan is divided, as is Pakistan itself, into four major provinces—the NWFP, Baluchistan, the Sindh, and Punjab (with a “Seraiki”-dominated area in the frontier region of southern Punjab bordering Sindh). To these regions may be added Pakistani ruled Kashmir and the Federally Administered Tribal Areas located in the area broadly associated with the NWFP. In each area, distinctive ethnographic, political, and rural-urban habitation patterns prevail and were implemented in the construction of VirPak. Largely uninhabited regions, or very sparsely inhabited regions, were implemented by using “uninhabited cells” (marked as gray). In addition to capturing broad relationships among religious, ethnolinguistic, regional, economic, and clan loyalties, three crucial kinds of decisions were required to construct Virtual Pakistan (or any such virtual country).

1. How to distribute identities among agents between regions and within the different regions (especially regarding urban/rural divisions) so that characteristic clusters of latent identities are located in proportions that reasonably correspond to the best data available.
2. How to achieve a reasonably accurate pattern of activated identities at $t = 0$.
3. How to create networks of different types of agents (agent classes) to correspond with various patterns of power relations within rural and urban areas and with respect to the organizational capacity of key groups, including, in the case of Pakistan, the national government, the military, the Muslim fundamentalist movement, criminal networks, rural landowners with feudalistic ties to peasant communities, local clerics, and provincial bureaucracies.

All three items are addressed in the subsequent sections.

5. Identity Repertoires in Pakistan

The social repertoire, or spectrum, for the population of VirPak consists of thirty identity categories, both ethnic and non-ethnic.⁸ Although the model does not

⁸ Technically there are thirty. In fact, identity 28 (Hindu/Indian) is not present in the repertoire of any Pakistan agent and identity 29 is a special condition, rather than identity, that allows PS-I to estimate the effects of nuclear events unleashed by terrorism or instability on the “performance” of Virtual Pakistan. So it is reasonable to think of VirPak as including a spectrum of twenty-eight politically relevant identities (identities 0–27).

explicitly distinguish the identity categories from the attributes that are the raw material for those categories, the model is consistent with Chandra and Boulet's framework. The individual identity categories in an agent's repertoire can be thought of as prefabricated combinations of attributes drawn from a number of different dimensions including kinship (various Qaum or clan affiliations), mother-tongue (Pushtun, Punjabi, Seraiki, Baluch, Muhajir, Afghan), religion (Shia, Sunni traditional, Sunni fundamentalist), and occupation (government, landlord, military, commercial, worker, peasant). Any particular identity category can be activated, or "professed" (i.e., publicly displayed, at any particular time). Over time, the pattern of identities displayed by an agent is a function of the particular "complexion" of its repertoire and the changing incentive structure of its environment.

The repertoire of an agent is stickier than the activated identity drawn from the repertoire. But agent repertoires are also susceptible to change when strong pressures from the environment induce agents to shed elements in their repertoires and acquire more serviceable identities. In other words, although the set of "categories" that are represented in a repertoire are individually "prefabricated," the complexion of the repertoire of the agent can change over time. Thus, if the agent has a repertoire of (1,2345) with 1 activated, it might well on a subsequent time step have (1,2945) activated on 1, still, but with 9 in its repertoire rather than 3. At any time step, the particular way that different identity categories cluster within an agent is in effect the strategy used by that agent in its interactions with others. From a combinatorics point of view, the set of all possible strategies is determined by the vast number of arrangements of identities possible within an agent's repertoire.

It will be noted that the identities listed here do not comprise a complete list of ethnic, linguistic, religious, or political categories in Pakistan. Nor do they all play important roles. The Indian/Hindu identity (28) exists only as a marker of "India" to the east of Pakistan. The black border between India and Pakistan, and Pakistan and Shi'a (4) Iran, prevent cross-border contact, simplifying our analysis of the internal dynamics of Pakistan but leaving open possibilities for future work in which these borders might be made penetrable by direct cultural or political influences. In addition, it was decided not to try to include attachments to political parties as identity markers. With the exception of relatively small cadres of professional politicians, the importance of political parties lay in the extent to which they reflect clusters of interests and identities (landowners, government bureaucrats, peasants, Pushtuns, Muhajirs, commercial elites, workers, etc.) which are present in the complexions of agents.

As noted, the repertoires of individual agents consist of subsets of these thirty categories. The size of this subset varies. In both Chandra and Boulet's

combinatorial model and van der Veen and Laitin's agent-based model, individual repertoires of nominal identity categories are of uniform size. But in VirPak, some agents (reflecting cultural or ideological rigidities and often rural habitation) have as few as two identities in their repertoire, substantially limiting their adaptability. Others, reflecting educational sophistication, opportunism, or cultural complexity and flexibility, have as many as nine. Figure 12.3 provides a color-coded list of identities present in the spectrum of identities theoretically available to any agent in VirPak along with information regarding the number of agents currently displaying as "activated" on each particular identity and the number of agents holding that identity in their repertoire (see color plate 12.3). The fact that each agent has multiple alternative identities in its repertoire but only one activated identity explains why the numbers in the "subscribed" column (the number of agents containing a particular identity in their repertoires) are so much larger than those in the activated column (the number of agents currently displaying that identity to its neighbors).

Most agents can deploy alternative identities within their repertoire and most agents can absorb new identities into their repertoire but must discard an identity not currently deployed to do so. A black border surrounds the country and divides it from Iran in the west, India in the east, and Afghanistan in the north. The Indian Ocean is to the south, "populated" by agents mostly carrying a globalizing identity. There is substantial cross-border traffic in the northwest, with Afghanistan, but in general VirPak is focused not on its specific relationships with Iran, India, and Afghanistan but with implications of its internal balance of forces. Virtual Pakistan is designed with the intention that 200 time steps correspond roughly to one year in real time. Experiments reported here are run to 608, or approximately three years.

By maintaining or changing their activated identities, or by substituting a new identity for an identity previously in their repertoires, agents respond to streams of small changes in the sum of advantages or disadvantages of presenting themselves in public according to various ethnic, economic, religious, political, or kinship categories. As noted, different "runs" of the model, which is to say different "futures" of VirPak, are generated by randomizing the initial distribution of "biases" (the relative advantages and disadvantages of "activating" different identities currently available to each person or community) as well as by randomizing the stream of changes in bias assignments that follows the initial "scramble."⁹

⁹ For a detailed explanation and illustration of the algorithms determining agent behavior calculation in response to changing patterns of local activation on available identities and changing biases assigned to different identities, see Lustick 2002a.

6. The Distribution of Identity Repertoires in Virtual Pakistan

The distribution of subscribed identities to different agents is crucial.¹⁰ An agent can activate much more readily on an identity already present in its repertoire than if it needs to absorb that identity into its repertoire first and discard an already present identity.¹¹ By distributing identities carefully, a significant amount of the nuance associated with complex political realities and multiple loyalties can be captured. Our representation of the distribution of identity repertoires in VirPak goes significantly beyond previous formulations in several ways. First, it allows for individual-level variation in both the size and content of identity repertoires. Second, it allows for *regional* variation in both size and content of repertoires—and takes the population density of each region into account. The geographic distribution of repertoires of identity categories may well be one of the most significant variables affecting state contraction and other outcomes and processes associated with ethnic differences, but it has not so far been modeled in this book. Third, we allow for correlations between different types of identities in a repertoire: Certain identity categories go together in a repertoire while others do not. Fourth, in a different way of conceptualizing “stickiness,” identities can vary in whether they are “obtainable” or “unobtainable”: Agents can be “born” with unobtainable identities but cannot bring them into their repertoires if they are not already there. The remainder of this section elaborates.

For example, an agent’s repertoire might be comprised in part or in full by identities: 1, 15, 19, 21—indicating Sunni, Muhajir, Landowner, and Pakistan Government. This kind of agent would be a Muhajir, relatively loyal to the

¹⁰ The version of Virtual Pakistan described in this chapter was built in 2002 with data available up to the end of 2002. Accordingly the social, demographic, cultural, geographical, economic, and other inputs for the model were those available in 2002. The model was run to produce simulations of the future, in a “forecasting” mode for the years 2003–2005. Consideration of the results of these simulations is now to be understood as retrodiction and retrodictive analysis. Data used for the creation of VirPakistan were assembled from a large array of publicly available sources, including: *Ethnologue.com Ethnologue report for Pakistan*, “*Languages of Pakistan*,” http://www.ethnologue.com/show_country.asp?name=Pakistan, <http://www.pakmart.com/map/map.htm>; Cohen 1998, 2002; Labour Force Surveys, Population Census of Pakistan 1998; Tanham 1999; Nasr, 2001; Kux 2001; International Crisis Group 2002, <http://www.crisisgroup.org/~media/Files/asia/south-asia/pakistan/Pakistan%20The%20Dangers%20of%20Conventional%20Wisdom.pdf>; *India Today*, January 28, 2002, 24–30; Jones 2002; Schaffer and Mehta 2002; Soofia, Racine, and Ali 2002; James Martin Center for Proliferation Studies, <http://cns.miis.edu/>; Pakistan Demographic Surveys, Federal Bureau of Statistics and Planning Commission; “UNMOGIP Deployment,” Map No. 3828 Rev 5 (July 1999), Department of Public Information, United Nations; Khyber.org, Assorted Maps, <http://www.khyber.org/maps.shtml>; CIA Factbook: Pakistan, <https://www.cia.gov/library/publications/the-world-factbook/geos/pk.html> accessed 2002.

¹¹ At $t = 0$, 72% of the agents within the `Pakistan_shape` portion of VirPak are basic agents.

government but likely to be located in a rural area, probably in Sindh. As a matter of fact, there are two such agents with these identities in their repertoires. Both are low-echelon government bureaucrats, meaning each is activated on identity 21 at $t = 0$ and has an influence level of 2 (see below). One is located in rural Sindh. The other, in western Punjab, has a military identity in its repertoire as well. On the other hand, an agent whose repertoire had 0, 1, 19, 22, indicating Punjabi, Sunni, Landowner, and Criminal, might be considered potentially corrupt, ready to serve the interests of the landowning rural elite, and an obstacle to dependable government control over the rural areas of Punjab where such agents are likely to be located. Indeed there are eleven such agents (most having several other identities as well) in the rural (mostly southern) Punjab.

For another example, consider the identity combination: 4, 11, 14, 16 (Shi'a, Pushtun, Urban worker, Military). Such an agent would represent members of the minority Shi'a community among Pushtun workers in Peshawar with sympathies or aspirations toward, ties to, or relatives in the military. On the other hand the combination 1, 10, 11, 16 (Sunni, Qaum/Clan identity, Pushtun, and Military) would indicate a rural Pushtun Sunni Muslim with a particular clan identity and sympathies or aspirations toward or relatives in the military.

An important element in designing and implementing VirPak was to determine which identities tend to cluster with one another and then realize those patterns within a geographical and overall statistical framework that corresponds to available data about real Pakistan. A good sense of the overall composition of VirPak can be gained from the table presented in Figure 12.4 (see color plate 12.4). This table, describing the baseline condition of VirPak at $t = 0$, cross-tabulates all identities with one another to indicate how often particular identities in VirPak are present within the same agent repertoire as each other identity. The column of numbers under each identity listed across the top of the table lists the number of times that that identity is accompanied within the repertoire of a VirPak agent by the identity listed in the column of identities at the extreme left of the table.¹² More detailed analysis is also possible. For example, identity 0 (Punjabi) is present in 1,417 VirPak agents. More of these agents contain in their repertoire the Sunni Muslim identity (1), than any other identity: 1,122. The other identities present in large minorities of these Punjabi agents are, in order of their most frequent appearance, 18, 20, 16, 13, and 14 (peasant, north Punjabi clan affiliation, military, north Punjabi clan affiliation, worker, south Punjabi clan affiliation, Shi'a).

¹² The highlighted numbers in the diagonal running through the middle of the table are the number of agents containing that one identity in their repertoire. The careful reader will note that these numbers are occasionally higher than those listed as "subscribed" to various identities in the Statistics display presented in the figure. The reason for the discrepancy is that this table includes identities in all agents present in VirPak, whereas the statistics display counts only "active" agents (i.e., it excludes "apathetic" agents who do not influence agents around them.

These raw figures, however, can be deceiving. Some identities, such as the clan (*qaum*) identities, are “unobtainable” and activated by relatively few agents.¹³ They therefore figure relatively obscurely in the visible competition among political forces in Pakistan. Nor do they have authority structures at their direct disposal (influential agents, activated on those identities at $t = 0$). The most salient identities in VirPak, those with the agents activated on them at $t = 0$, those with the largest subscriptions, and those most relevant to the trajectories into the future produced from the template are: Punjabi (0), Sunni Muslim (1), Sindhi (3), Pushtun (11), Muslim fundamentalist (12), Worker (14), Muhajir (15), Military (16), Peasant (18), Landowner (19), Pakistani Government (21), and Criminal/Smuggler (22).

In VirPak at $t = 0$, 44% of agents have a Punjabi identity, meaning that they have identity (0) in their repertoire. Seventy-nine percent are Sunni, 15% are Shi'a. These proportions correspond relatively well to what we know about Pakistan's ethnic and religious makeup. Few if any Punjabis have Muhajir, Baluch, Sindhi, or Pushtun identities in their repertoires though some have Seraiki or Kashmiri. Forty-eight percent of Punjabis are peasants, living in the rural areas of the Punjab, excluding the Seraiki area. Fourteen percent are workers, located mainly in the urban areas. Twenty-one percent are oriented positively toward the military and are readily available for recruitment. Punjabis predominate in the urban areas of the Punjab, meaning the wide corridor stretching southeast from Rawalpindi and Islamabad toward Lahore and then south-southwest toward Bahawalpur and Multan. But Punjabis are not as predominant in Punjabi cities as they are in the countryside. Only 4% of Punjabis include the urban middle-class identity (25) in their repertoires. Sunni Muslims in the rural Punjab are almost all affiliated with kinship networks of importance, linking them to regionally concentrated populations of other Punjabis. Although the overwhelming majority of Punjabis live in Punjab, significant numbers are also present in Sindh and in Baluchistan.

Seventeen percent of agents in VirPak are Sindhis—agents with Sindhi (3) in their repertoire. Almost all located in Sindh, where they predominate in the rural areas but are outnumbered in Karachi and Hyderabad. Few if any share Punjabi, Pushtun, Kashmiri, or Muhajir identities. Pockets of Shi'a are present in the northwest of Sindh, but the overwhelming majority are Sunni. Sixty-four percent are peasants, reflecting the “Sons of the Soil” dimension of Sindhi identity. Ten percent are Muslim fundamentalists. In the borderland with the Seraiki area many share a Seraiki identity. Criminal identities are common. Only 7% have military orientations or sympathies and even fewer begin with attachments or connections to the Pakistan government.

¹³ Agents in VirPak can be “born” with unobtainable identities, but in the three years of simulated time explored in these experiments, agents cannot bring them into their repertoires if they are not already there.

Pushtuns, those agents with Pushtun (11) in their repertoire, represent 13% of agents in VirPak. The vast majority are located in NWFP, but they can be found as well in the Punjab and in Sindh, especially in Karachi. Few if any share Sindhi, Baluch, Muhajir, Kashmiri, or Punjabi identities. More than 80% have either or both of the Sunni Muslim and Muslim fundamentalist identities. Nine percent are Shi'a. The great majority of non-Shi'a Pushtun agents are each affiliated with specifically Pushtun kinship networks (5, 9, 10). An unusually high proportion of Pushtuns (41%) have ties to or positive orientations toward the military. Thirty-eight percent are peasants. Muslim fundamentalist tendencies are also strong, present within 40% of non-Shi'a Pushtuns. Thirty-two percent of Pushtuns share the criminal/smuggler identity (22). Very few are associated with the urban middle class.

Muslim fundamentalists are those agents containing (12) in their repertoires. In the baseline condition of VirPak 13% of agents have this identity in their repertoires. Agents containing this identity are spread throughout geographical VirPak, but relatively less prominently in the urbanized corridors of the northwestern Punjab. Centers of Muslim fundamentalist identity affiliation are in the NWFP, eastern and central Sindh, Kashmir, and the rural Punjab, particularly around the city of Multan. Reflecting the largest identity groups in VirPak, Muslim fundamentalists as a group are heavily Sunni Muslim (in fact no agents at $t = 0$ in VirPak are both "Shi'a" and "fundamentalist," reflecting the Sunni nature of the Deobandi movement in Pakistan and the hostility between these Muslim fundamentalists and the Shi'a). Ethnically, Muslim fundamentalists are disproportionately Pushtun (39%). Twenty-five percent are Punjabi, 16% Muhajir, and 9% Sindhi. The relatively small Kashmiri population in VirPak (about 3%) is, like the Pushtuns, disproportionately represented among Muslim fundamentalists. Six percent of agents with the Muslim fundamentalist identity also have the Kashmiri identity. The movement is weak, of course, among westernized liberals (2) and is also only rarely present in agent repertoires also containing the military identity.

Workers are non-elite Pakistanis living in urban rather than rural areas. They comprise 14% of all agents in VirPak. Ethnically they are disproportionately Punjabi and Muhajir, with a fair representation of Baluch and Sindhi, but relatively few Pushtun. Seventeen percent identify with or are part of the Pakistani government, though a relatively small percentage has positive orientations toward the military. Naturally there are few agents with the worker identity who also have the commercial elite (23), the urban middle class (25), or westernized liberal (2) identities. They have a moderate representation in the ranks of the fundamentalists.

Muhajirs are Pakistanis whose families came from India to settle in Pakistan as a result of the violence in 1947. In VirPak they are closely associated with the Pakistani government, with 55% of Muhajirs sharing a Pakistani government

identity (21). They are located almost entirely within the urbanized areas of Sindh and the Punjab. No Muhajirs are peasants, but, as mentioned, many are workers. They are also strongly represented within the middle class and the commercial elite. Fifteen percent share the urban middle-class identity (25). Twenty-nine percent of Muhajirs have the commercial elite identity (23) in their repertoires. A significant proportion is sympathetic with or part of the Muslim fundamentalist movement. Nineteen percent of Muhajirs are Shi'a. The great majority are Sunni, although approximately 10% are without any religious designation, reflecting secular trends that are somewhat more pronounced among Muhajirs than among other groups in Pakistan.

The military identity (16) is subscribed to by 18% of the agents in VirPak. It is mostly Sunni Muslim with a moderate representation of Shi'a. The Punjabi and Pushtun ethnic groups predominate, with 53% of military-oriented or involved agents including the Punjabi identity and 31% including the Pushtun identity. Few Baluch or Muslim fundamentalists share the military identity. But it does overlap strongly with the Pakistani government identity. Twenty-five percent of agents subscribed to the military identity are also subscribed to the Pakistani identity (21). As we shall see, many of these are in the government bureaucracy or in the military itself at $t = 0$ in baseline VirPak. The military contains disproportionately few peasants and workers. Geographically, agents with the military identity are concentrated heavily in the NWFP, the northern Punjab, and in nine areas around the country, including Karachi, Quetta, and the regions bordering India, where various formations of the Pakistani military are known to have their headquarters.

The peasant identity (18) is present in the overwhelming majority of Sindhi and Punjabi agents not living in urban areas, not part of an administrative authority structure (a bureaucracy—see section 7, "Distribution of Power in Virtual Pakistan"). These agents comprise 41% of VirPak. Eighty-three percent are Sunnis, affiliated with various clans if they are Pushtun or Punjabi. Almost all the rest are Shi'a. Agents with the peasant identity may have an attachment to their local landlord, and hence have the landlord identity (19), but few or none have identities suggesting education or worldliness, such as westernized liberal, urban middle class, commercial elite, or worker. The peasant identity is prominent among the Seraiki (6) in a southern extension of the Punjab, the Baluch, and among the Pushtuns. Only 2% of peasants also have a military identity. Importantly, the size of peasant identity repertoires is smaller than other VirPak agents. Many have four identities: peasant, a religious identity, an ethnic identity, and perhaps a clan identity. Other agent repertoires are comprised of three or even just two identities. This reflects the narrower field of political vision associated with peasant life.

The landlord identity (19) is established within a relatively small number of VirPak agents—9%. But 25% of these, located in the rural areas, are activated on

that identity at $t = 0$ and endowed with an influence level of 4. This means they have inordinate influence over their (mostly peasant) surroundings. Agents in their proximity are mostly activated on peasant or Sunni Muslim, or on a regionally specific ethnic identity (Punjabi, Sindhi, Seraiki, or Pushtun). The criminal/smuggler identity is present in the repertoires of 39% of agents with the landlord identity at $t = 0$. Although none of the agents activated on the landlord identity at $t = 0$ and exercising the influence of landlords do have the globalizing identity (8), reflecting contacts with extra-Pakistan networks and values, a substantial proportion of those agents who are not landlords but have attachments to landlords via inclusion of that identity in their repertoire, do have the globalizing identity. This is meant to simulate, mainly, the connections that tie together criminal/smuggler elements, wealthy landlords, and international networks of illicit trafficking activity. In this context it is important to note that 21% of VirPak agents with the landlord identity also have the military identity, and that 16% have the Pakistani governing identity, both reflective of the significant levels of corruption and of the informal influence of the landed oligarchy in Pakistan on governing institutions, especially in the rural areas. On the other hand, Muslim fundamentalism is not commonly present among landlord or landlord attached agents.

The Pakistan governing identity (21) is figured as a positive orientation toward Pakistan, *per se*—an identity associated with the founder of Pakistan, Mohammad Ali Jinnah, who famously envisioned Pakistan as a country for Muslims but not of Islam and sought to enshrine a “Pakistani” identity above various ethnic, linguistic, and sectarian attachments.¹⁴ Agents having this identity in their repertoire are concentrated in the urban areas of the Punjab—the corridors running between Islamabad and Lahore and between Lahore and Multan—and also in the Hyderabad and Karachi areas of Sindh Province. Agents with this identity are very scarce in Kashmir, NWFP, Baluchistan, and the Seraiki area. Reflecting the rather weak institutionalization of this state identity among the Pakistani population, only 9% of agents in VirPak have this identity in their repertoire. Fifty-six percent of these are agents exercising more than the usual influence, including a high proportion directly affiliated with the bureaucratic apparatus of the government or the military. Among the identities that are disproportionately associated with the Pakistan governing identity are, in addition to the military, Muhajir, commercial elite, and globalizing. The Muslim fundamentalist identity is present in 10% of agents with identity 21 in their repertoires.

The importance of the black economy in Pakistan is reflected in the large number of agents in VirPak with the Criminal/smuggler identity (22) in their

¹⁴ The strength of Ali Jinnah's Attaturkist vision is reflected in the report that the only picture of another politician in the office of the former President of Pakistan, Pervez Musharraf, is that of Attaturk.

repertoire—15%. The identities most commonly associated with this identity in VirPak agents at $t = 0$ are Sunni Muslim and Globalizing, followed by Military, Punjabi, Pushtun, Peasant, and Landlord. In keeping with the idea of a black economy and the illegality of criminal and smuggler activity, the ratio of agents activated on this identity to those harboring the identity within their repertoires is unusually small (3%—compared, for example, to an activated/subscribed ratio of 43% for the Punjabi identity and 37% for Shi'a). Agents with identity 22 are present throughout VirPak but are particularly concentrated in a wide corridor running through the NWFP, down through Baluchistan, western Punjab, and western Sindh to Karachi, thereby simulating the primary smuggling routes connecting Afghanistan to the Indian Ocean.

7. Distribution of Power in Virtual Pakistan

The power structure of the regime in Pakistan is represented by interlocking networks of "influentials" including "bureaucrats" if they are associated at $t = 0$ with an official civilian or military authority structure. These agents are located in a pattern of proximity and regularity that multiplies their ability to remain activated on the identities they share—mainly the Pakistani governing identity and the military identity, but also Punjabi and, to a lesser extent, Muhajir and Pushtun. By reinforcing one another's activation patterns, bureaucrats substantially increase the likelihood that agents in their neighborhoods, and bordering neighborhoods, will activate regime identities (those activated by the bureaucrats) or maintain their activation on those identities even when biases or outside influences turn against them. These networks of influential express regime preferences and constitute an organized expression of its institutional capacity.

The number of government bureaucrats and activated military agents in VirPak corresponds roughly to the combined proportion of government officials and the uniformed military to the total adult male population in Pakistan. The administrative and political center of the Pakistani regime is located in the urbanized corridors mentioned above, and including the primary Punjabi cities of Lahore, Gujranwala, Rawalapindi, Islamabad, Faisalabad, Multan, and Bahawalpur. The regime's bureaucratic center is located within these areas, where its authority is best established. Additional centers of regime power, as reflected by the presence of relatively dense webs of influentials activated on either the Pakistani governing identity or the military identity, are located in Hyderabad and Karachi. The presence of longer strings or more isolated influentials in the rural areas of Punjab and elsewhere corresponds to the relative weakness of Pakistani national institutions in the rural areas, and especially in outlying districts of the NWFP, Kashmir, Baluchistan, and in rural Sindh. The relative weakness of these bureaucratic networks allow locally powerful identities (Sunni

Muslim, Landlord, Criminal/smuggler, or regional/ethnic) to strongly influence the behavior of these agents and make their "capture" by identities other than the Pakistani governing identity and the military identity more likely. Figure 12.5 shows a portion of VirPak, focused on the northeastern Punjab and containing the more densely populated areas of the country within which the national authority structure is most firmly entrenched (see color plate 12.5). The display is magnified to help identify the different icons representing agent classes discussed in this section.

There are three echelons of bureaucratic authority. The most common type is "influential2," having an influence level of 2 (twice that of a basic agent) and marked by the icon of a plus sign. Mid-echelon elites, with an influence level of 3 are "influential3's" and are marked by a pinwheel icon. High-echelon bureaucrats and military commanders are "influential4's," marked by a circle icon. In a well-disciplined bureaucracy lower echelons receive orders from above and act only within the parameters set for them by superiors. In a disciplined bureaucracy more discretion can be exercised the higher a bureaucrat is located in the hierarchy. Modeling such a hierarchy would mean, *inter alia*, making the repertoires of higher-echelon bureaucrats larger than those in the lower echelons. The Pakistani national bureaucracy, and even more the provincial governing institutions, are infamous for their lack of discipline, their penetration by extra-governmental forces, and for corruption. Hence the authority structure in VirPak contains a large numbers of lower-echelon bureaucrats with larger repertoires, reflecting the openness of these erstwhile agents of the state to influences from their local surroundings. Mid- and upper-level bureaucrats may also have medium or large repertoires, but the average repertoire size of upper-level bureaucrats is quite small.¹⁵

Although the low echelon of the bureaucracy is modeled as relatively open to external influences from dominant groups, not only do the high-echelon influentials have relatively small repertoires, but those repertoires also reflect a coherence corresponding to the dominance of the regime by individuals and groups with worldviews and interests shaped powerfully by Punjabi and Military identities. There are twenty-four influential3's and influential4's activated on the Pakistani governing identity at $t = 0$, and each one has either the Punjabi identity (0) or the Military identity (16) in its repertoire. Of fifty-five influential3's and influential4's activated on either the Military or the Pakistani governing identity at $t = 0$, twenty-six of them have Punjabi, Military, and Pakistani identities in their repertoires. The government bureaucracy is also heavily influenced by and

¹⁵ In general discipline is considered to be stronger in the military than it is in the civilian sector of the national authority structure. The average size of the repertoire of a basic agent in VirPak is 3.8. It is relatively small, reflecting the largely peasant, mostly illiterate, and parochialized nature of Pakistani society.

intertwined with the commercial elite. Thus the Commercial elite identity (23) is present in the repertoires of 64% of agents activated on the Pakistani governing identity at $t = 0$. Forty-two percent of influential2's, 3's, and 4's in VirPak at $t = 0$ have the Commercial elite identity in their repertoires.

There are also sixty-six influential2's in VirPak activated at $t = 0$ on the Sunni Muslim identity. These agents are located mostly in the rural Punjab and the Seraiki areas. They represent the diffuse but locally significant influence of traditional Muslim clerical elites. Many are local clergy located in close proximity to powerful landlords in their areas. These landlords, activated on the Landlord identity (19), located primarily in the rural areas, and having influence levels of 4, can therefore transform these Muslim clerics (each of which has the Landlord identity in its repertoire) into local instruments of their own power. A large proportion of these rural clerics (83%) have the Criminal/smuggler identity in their repertoire. In the baseline condition described here only a few (6%) have the Muslim fundamentalist identity.

Entrepreneur agents, marked by the icon of a small square in an agent's center, emulate well-placed and relatively persuasive opportunists. Entrepreneur agents have rather larger repertoires, averaging twice the size of that of basic agents, corresponding to their political versatility. They also "update" before other agents, reflecting their more aggressive scanning of their neighborhoods and of the general political scene for opportunities to more effectively align themselves with ascendant forces. Their "triggers" for the rotation of latent identities into activation and for substituting a new identity for one not in their repertoire are also lower than these triggers for basic or influential agents. These lower triggers simulate the greater sensitivity of political entrepreneurs, or entrepreneurs of identity, to hints of political opportunity.

There are sixty such agents in VirPak, concentrated mostly in the urban areas, though in the rural areas they are commonly found in proximity to influentials associated with various groups, including ethnic leaders, religious leaders, landowners, and provincial bureaucrats. Many of those in the urban areas are in direct contact with the national civilian or military bureaucracy, acting as transmission belts for influences on the government (when the regime is relatively weak) and for influences from the government on the society (when the regime is relatively strong). Thirteen of these agents are actually within the civilian bureaucracy, meaning that they are entrepreneurs activated on the Pakistan governing identity (21) and located within the web of Pakistani bureaucrats. As "entrepreneurs" they contribute to the indiscipline and corruption of the Pakistani bureaucracy, but also to what sensitivity it has to extra-governmental influences.

Fanatics are marked by a diamond icon. These agents refuse to change their activated identities no matter how unattractive that identity may be in comparison to others. Each has an influence level of 3 and, therefore, provides a constant source of support for any other agents in their neighborhoods with inclinations

toward its identity activation. It also helps secure a base of support during difficult times for that identity should circumstances change to make it once again attractive to large numbers of agents. There are fifteen fanatic agents inside Pakistan in VirPak. Eight of these are Muslim fundamentalists, located in areas of core strength for the Deobandists in Pakistan—NWFP, Multan, and Karachi.

The opposite of a “fanatic” is an apathetic agent. Whereas fanatics are “immutable” with respect to their activated identity but “active” with regard to influencing those agents in their neighborhood, apathetic agents are “inactive”—they do not influence agents in their neighborhoods—but do change their activated identities in response to the same forces that affect basic agents. Apathetic agents are marked with an icon of a small square inside a diamond. There are thirty-one apathetic agents in the baseline VirPak condition. All are located in rural areas, especially the Punjab and the Seraiki area, and are activated on the peasant identity.

There are also thirty-two “scared” agents in VirPak, again mostly in the rural Punjab and the Seraiki area. These agents, also predominantly peasants, do influence their surroundings, but are timid in their behaviors. They are designed to monitor a wider local neighborhood than do other agents before deciding to change their activated identity, but they are quick to rotate a new identity into activation once a relatively slight reason for doing so seems to be present.¹⁶

Another agent class in VirPak is Innovators. Innovators, marked with an icon of a black slash in the upper-left-hand corner. They update early, as do entrepreneurs, but unlike entrepreneurs they have an influence level of 1 rather than 2. In VirPak the innovator triggers for change of repertoire and activated identities are identical to those of basic agents.¹⁷ There are forty-five Innovators in VirPak, figuring mainly as rapid exploiters of situations who do not then act as leaders or strong influences on their surroundings. All contain the Criminal/smuggler identity. They help to capture the role played by Afghan refugees, criminal/smugglers, and corrupt contacts with bureaucrats. They are mostly concentrated in Karachi and other parts of Sindh and in the Quetta area of Baluchistan, where the writ of the government does not run dependably. Just offshore of Pakistan, near Karachi, innovator agents operate, activated on the Globalizing identity, to simulate contacts with international networks for illicit trafficking.

¹⁶ Low voter turnout in the recent Pakistani elections suggests higher levels of political apathy in Pakistan than were used to design VirPak. Increasing the amount of apathy in VirPak by increasing the prevalence of apathetic agents in the population had significant effects on outcomes.

¹⁷ The trigger settings for innovators were intended to be set to be as sensitive as those for entrepreneurs. Due to a technical error, this aspect of the operationalization was not implemented. Given the small number of innovators in VirPak, their presence almost entirely in the extreme south of country, and the similarity of basic agent settings to those normally assigned to innovators, the impact of this error on experimental results relating to secessionism in general and center secessionism in particular is almost certainly very small.

The only other distinctive agent class in VirPak is “Broadcaster.” Broadcaster agents are used to simulate the effects of media in Pakistan promoting particular kinds of messages. Broadcasters have an influence level of 1. They “broadcast” their identity to listeners meeting requirements specified by the user. In VirPak, agents listen to broadcasters located away from their own geographical neighborhoods if they have at least one “politically attentive” identity in their repertoires.¹⁸ There are four broadcaster agents in VirPak. Two are activated on Muslim fundamentalist and located in zones in the NWFP and near Multan, in which support for that identity is strong. The third broadcaster is in the center of Pakistani government control and is activated, initially, on the Pakistani governing identity. A fourth is located offshore, near Karachi, and is activated on, the globalizing identity (8). Whatever identities these agents are activated on receive extra support for those identities in the calculations of the agents who are listening. Although the offshore Broadcaster can only broadcast the globalizing identity (unless that identity is replaced in the course of time as a result of regional pressures), the Broadcasters inside Pakistan have wider repertoires. If captured by identities or political affiliations other than those on which they were initially activated, then those identities or affiliations receive the boost of media support that previously went to their originally activated identities. Agents listening to these media include the message they hear as a count of an additional identity weight point in their identity weight calculations, making it more likely that, *ceteris paribus*, they will activate on that identity or substitute it for an identity they already have but are not activated on.

8. Secessionism and Center Secession in VirPak

In this study, secession is defined as the separation of an ethnically and geographically coherent region from the larger state of which it had been a part. Secessionism refers to efforts by supporters of such a separation to move toward that objective. We code the presence of secessionism in VirPak, whether by Pushtuns, Sindhis, Seraikis, or Punjabis, as the transformation of agents activated on one of those ethnoregional identities into black “border cells.” Border cells are immutable and inactive sites and as such can constitute barriers to contact between regions depending on their number and distribution. These cells are located along the external border of Pakistan at $t = 0$, but not within the borders of the country. Border cells arising within `Pakistan_shape` can only arise as a result of basic agents transforming into border cells during a dynamic run.

¹⁸ These identities were Worker, Globalizing—United States, Muslim fundamentalist, and Pakistani governing. Approximately 25% of VirPak agents within `Pakistan_shape` at $t = 0$ were eligible to Broadcasters.

The algorithm determining eligibility for basic agents to transform into border cells is based on three theoretical principles that form the consensual basis for expectations of secessionism within the literature. Secessionism can arise when relations are polarized between a sizable minority group, compactly organized within a particular region of a territorial state, and the dominant group in the state, and when members of that minority encounter direct experiences of friction or conflict with outgroup members. Conforming to these principles, basic agents in VirPak can transform into border cells if three conditions are met. These conditions pertain to both macro circumstances of which individual agents are unaware and local realities of which they are aware. When for any particular agent in any particular time step each of these conditions is met, a low but nontrivial probability is created that that agent will be transformed into a border cell.¹⁹ The rules we have implemented to operationalize these conditions governing the production of border cells can be stated, nontechnically, as follows:

1. *Polarization*: 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 cell if 20% or more of the agents activated on that identity at that time have the dominant identity within their repertoires.
2. *Size of a qualifying identity group*: Secessionism by agents of the leading group in a society is excluded. At any given point in time the leading group (whether ethnic, civic, class, religious, etc.) is considered to be the identity activated by a plurality of agents in the polity. On the other hand, secessionism cannot be produced by a group unless it constitutes a substantial proportion of its region. In VirPak no agent at any one time step is allowed to transform into a border cell unless its activated identity is activated by at least 10% of VirPak agents.
3. *Individual action*: In the course of a VirPak trajectory, some otherwise qualifying agents will be more likely than others to engage in secessionist activity. For example, those lacking 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

¹⁹ In the experiments reported in this chapter, the probability of an otherwise qualifying basic agent turning into a border cells was 20% per time step in which the basic agent remained qualified. This probability can easily be adjusted for experimental purposes. Sensitivity tests conducted in relation to our "Beita" studies (see note 21) indicated that adjusting this probability value between 15% and 25% did not alter the frequency with which border cells appeared. The effects on these adjustments on the number of border cells produced were linear, relatively small, and in the expected directions.

harboring those identities within their repertoires. Accordingly, no agent can transform into a border cell unless half or more of the agents it is in direct contact with are activated on an identity other than its own activated identity.

By registering the number of Punjabi activated agents that, by $t = 608$, transformed into border cells we measured the amount of Punjabi secessionism in any particular future of VirPak. By considering that index in combination with measures of the uniformity of Punjabi domination over substantial and contiguous portions of the Punjab, we identified outcomes classifiable as instances of center secession (i.e., of the emergence of a Punjabistan, separated from Pakistan). For any one of the regionally concentrated ethnonational groups, an instance of secession, as opposed to secessionism, was coded in Virpak if four conditions were met at $t = 608$:

1. The number of agents activated on the secessionist identity at $t = 608$ of a particular future was equal to at least 10% of the agents in VirPak (approximately 320).
2. The number of border agents produced from a secessionist identity, at $t = 608$ of a particular future, exceeded the median number of border cells produced by that identity in the futures that featured secessionism of any kind by that identity.
3. The number of influentials activated on the secessionist identity, at $t = 608$ of a particular future, exceeded the average number of influentials activated on that identity in all 100 futures of VirPak.
4. The average tension of agents activated on the secessionist identity at $t = 608$ was no more than 1 (meaning that, on average, agents activated on that identity, at $t = 608$ in that VirPak future, had no more than one adjacent agent activated on a different identity).²⁰

The rationales for these rules are as follows. Rule 1 corresponds to the minimum proportion of the population treated by PS-I as rendering agents activated on a particular identity eligible for transformation into border cells. The intuition here is that too small a minority could not sustain a secessionist movement and would be exceedingly unlikely to successfully organize itself as such. Rule 2 insures that a significant amount of secessionist activity by the agents affiliated with the secessionist identity has indeed occurred. Rule 3 requires there to be a substantial authority structure activated on the secessionist identity within the regions of its domination. Rule 4 effectively requires a seceding region to be quite thoroughly filled by agents activated on the secessionist identity. Combined, these benchmarks distinguished VirPak

²⁰ In practice this means a tension level of less than 1.1.

futures that visually presented themselves as including secession from those that did not.²¹

9. Punjabi Secessionism in VirPak

Can Punjabi Secessionism Exist?

Before considering the question of Punjabi secessionism as an example of “secession from the center” it is necessary to emphasize that indeed Punjabis are the single most potent political force in VirPak, as they are generally acknowledged to be in actual Pakistan. Figure 12.6 displays data describing average prevalence of competing identities according to their activation at $t = 608$ (see color plate 12.6). We see that the Punjabi identity does register the highest average, closely followed by the Pakistani identity and the traditional Sunni Muslim identity. The fact of Punjabi dominance is registered even more emphatically in Figure 12.7, where we see that the Punjabi identity achieved a plurality of the activated agents in VirPak at $t = 608$ in forty-four futures compared to twenty-six futures for Sunni Islam and twenty-four futures for Pakistani (see color plate 12.7).

Based on the assumptions, data, operationalizations, and codings employed in VirPak and described above, Punjabi secessionism is present in the futures of VirPak. Although a majority of the 100 Baseline VirPak futures did not include secessionism by any group, forty-three futures did. Punjabi border cells appeared in thirty futures, often accompanied by the appearance of secessionist activity on the part of other ethnoregional identities. Indeed, thirteen futures that did not feature even low levels of Punjabi secessionism did register secessionism by other groups—Seraikis (south of the Punjab), Sindhis (in the Sindh), and/or Pushtuns (in the NWFP). Within the thirty futures that registered Punjabi secessionism, numbers of Punjabi border cells ranged from a low of 7 to a high of 153 with an average of 31.8.

Figure 12.8 displays the Punjab in VirPak at $t = 608$ from three different kinds of futures. The image labeled Future 67 features Punjabi (colored in crimson/orange) secessionism (the presence of some, but not many and not well-organized [black] border cells (see color plate 12.8). The image also lacks a sizable densely “Punjabi” space. The image labeled Future 72 features substantial Punjabi secessionism, but without the coherence or territorial compactness

²¹ For more details on the theoretical rationale and algorithms for our operationalization of secessionism and our coding of secession see Lustick, Miodownik, and Eidelson 2004. The measures used in that study of secessionism in one region of an ethnically divided society—Beita—were adjusted in minor ways in this study. For example, secession in the Punjab region of Virtual Pakistan was coded using weighted proportion of Punjabis activated on the landowner identity but located within the Punjab.

coded as "secession." The image labeled Future 24 shows an array coded as Punjabi secession—the emergence of "Punjabistan."

Patterns in the Relative Strength and Prevalence of Punjabi Secessionism Within the Distribution of Futures

Figure 12.9 shows the general relationship between tendencies toward Punjabi secessionism and the overall success of the Punjabi identity at $t = 608$ (see color plate 12.9). The figure presents data on Punjabi identity prevalence, secessionism, and status as the plurality identity in order of the lowest Punjabi identity prevalence to the highest. We observe that, as might be expected, Punjabi secessionism was absent from the four highest deciles, when very large numbers of VirPak agents were activated on the Punjabi identity and when that identity was, quite often, the plurality identity, dominating the public sphere. Punjabi secessionism did make appearances at the lower end of the spectrum but was most regular and most potent in the range from 15 to 35 on this 100-point scale.²² In other words, activated Punjabis were much more likely to engage in secessionist activity when they were, as a community, in a relatively weak position within VirPak as a whole, though several futures that registered higher than the median point of Punjabi prevalence did feature Punjabi secessionism.

To be sure, the transformation of Punjabi activated agents into border cells does itself reduce, by that number of cells, the number registered as Punjabi activated agents. However, that direct effect of the transformation rule is overshadowed by the indirect effects of the barriers to interaction imposed on neighboring agents by the newly emergent border cells. Those barriers serve

1. To protect clusters of Punjabi activated agents that have already formed in their vicinity;
2. To encourage conformance to activation on Punjabi by agents within these clusters activated on other identities; and
3. To block expansion of the Punjabi identity from dense clusters on one side into territory prominently featuring other identities.

Having observed that Punjabi secessionism is most likely when the Punjabi identity does relatively poorly, but not terribly in comparison with other identities,²³ we can now ask whether Punjabi secessionism is associated with the

²² Recall that this scale ranges from "1," the VirPak future registering the fewest Punjabi activated agents at $t = 608$, to "100," registering the future with the most Punjabi activated agents at $t = 608$.

²³ This particular result is rather directly produced by the operationalizations implemented in the simulation. Subsequent patterns identified are not.

prevalence, the success, of particular non-Punjabi identities. In other words, in response to domination of VirPak by which other identities is Punjabi secessionism most likely to arise? Figure 12.10 contains an important part of the answer to this question (see color plate 12.10).

Along the X axis of Figure 12.10 are the 100 VirPak futures at $t = 608$. The Y axis indicates the number of agents activated on each of the five identities registering a plurality of agent activation in at least one future at $t = 608$: Punjabi—the plurality identity in forty-four futures; Pakistani, twenty-four; Sunni Muslim, twenty-six; Muslim fundamentalist, six; and Military, one. The futures are arrayed, from left to right, in order of the number of Punjabi border cells (i.e., in order of the amount of Punjabi secessionism). We see, as noted earlier, that in seventy futures there was no Punjabi secessionism. The black-shaded portion of the figure in the lower-right-hand corner represents the rising number of Punjabi border cells in these futures. By noticing the changing width of the bands of different colors above this black shaded area we can see several instructive patterns in the complexion of VirPak futures featuring Punjabi secessionism. For example, we observe that Punjabi secessionism, especially substantial amounts of it, appears when the Pakistani identity, allied with one or both of the military or Muslim fundamentalist identities, dominates the political landscape. We observe as well that, compared to the seventy futures that did not exhibit Punjabi secessionism, the thirty that did feature relatively small numbers of agents activated on the Sunni Muslim identity. This suggests that a key element militating against Punjabi alienation from the state, even if Punjabis are not politically dominant, is its traditional Sunni Muslim posture.

Can Center Secession Occur?

The only identity to produce an outcome codable by our rules as “secession” was the Punjabi identity. Center secession—the emergence of “Punjabistan”—was observed in two of the 100 baseline VirPak futures, Future 24 and Future 63. These were not the futures with the most or even particularly high numbers of border cells produced by Punjabi activated agents, but these futures did feature substantial, compact, nonfragmented zones of Punjabi domination including within them substantial authority structures under the control of agents activated on the Punjabi identity. Figure 12.11 presents the relevant portions of VirPak from $t = 608$ (see color plate 12.11).

We now turn to an examination of the trajectories that produced these “Punjabistan” outcomes, along with several others that scored high on a number of the Punjabi secession markers but could not be coded as full-fledged or successful secession. By considering the sequence of developments leading to the outcome measured at $t = 608$ we can learn more about conditions conducive to center secession in Pakistan. Still, a thorough analysis of this type would require

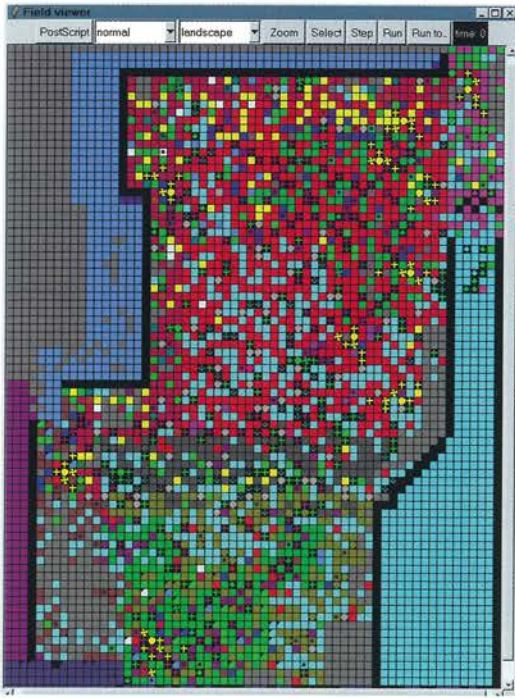


Figure 12.1 The Pattern of Identity Activation by Agents in VirPak at $t = 0$.

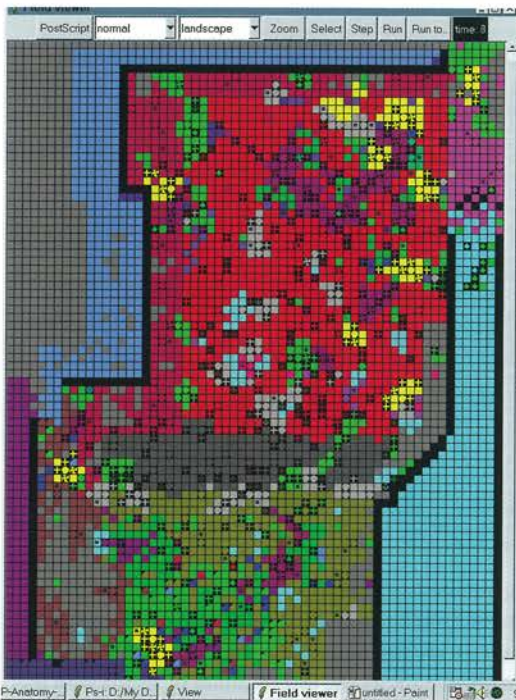


Figure 12.2 One example of Virtual Pakistan, baseline condition after eight time steps in which the biases are “scrambled” to offer a distinctive beginning point for future to be produced. Note dominance of crimson/orange color, signifying Punjabi activation.

	activated	color	subscribed	tension	bias	opposition_count	SI	OI
Punjabi.....	0	608	1396	2846	0	0	0	0
Sunni Muslim.....	1	155	2250	1024	0	79	0	0
Westernized Liberal.....	2	7	52	54	0	1	0	0
Sindhi.....	3	180	374	941	0	180	0	1
Shia Muslim.....	4	58	385	421	0	34	0	0
Qaum/clan 1 (Pushtun)	5	12	161	72	0	12	0	1
Seraiki.....	6	129	324	558	0	54	0	0
Baluch.....	7	68	167	273	0	68	0	1
USA/Globalizing.....	8	0	268	0	0	0	0	1
Qaum 2 (Pushtun).....	9	9	105	60	0	9	0	1
Qaum 3 (Pushtun)	10	5	100	36	0	5	0	1
Pushtun.....	11	203	425	835	0	203	0	1
Muslim Fundamentalist..	12	104	403	616	0	84	0	1
Qaum North. 1 (Punjabi)	13	25	251	188	0	1	0	0
Urban worker.....	14	32	448	232	0	15	0	0
Muhajir.....	15	229	297	1262	0	229	0	1
Military.....	16	169	565	1014	0	84	0	0
Kashmiri.....	17	38	110	186	0	37	0	1
Peasant.....	18	534	1269	2923	0	238	1	0
Landowner.....	19	75	282	558	0	30	0	0
Qaum North 2 (Punjabi)	20	1	315	8	0	0	0	0
Pakistani Government....	21	133	277	902	0	81	0	0
Criminal/Smuggler.....	22	13	474	92	0	10	0	0
Commercial elite.....	23	23	200	166	0	3	0	0
Afghan/refugee.....	24	23	52	171	0	13	0	0
Middle class urban.....	25	21	126	156	0	1	0	0
Qaum South 1 (Punjabi)	26	9	222	66	0	0	0	0
Qaum South 2 (Punjabi)	27	4	189	30	0	0	0	0
Indian/Hindu.....	28	0	0	0	0	0	0	1
Nuclear Affected.....	29	0	0	0	0	0	0	1

Figure 12.3 A color coded list of identities present in the spectrum of identities available in VirPak, information regarding the numbers of agents currently displaying as “activated” on each identity and holding that identity in their repertoires.

Subscribed on both:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
0	1417	1122	21	1	207	5	138	1	115	6	8	7	101	250	233	0	299	12	679	153	314	71	163	64	23	63	226	192				
1	1122	2277	33	283	12	120	244	161	205	96	91	328	360	218	321	212	414	106	1078	234	280	213	367	144	32	83	216	180				
2	21	33	52	5	9	1	0	0	16	8	4	18	12	2	0	2	7	33	9	24	0	15	2	24	0	15	1	1				
3	1	283	5	375	58	0	74	8	24	0	0	2	37	0	0	0	28	0	240	0	18	49	8	0	0	0	0	0				
4	207	12	9	58	388	1	0	38	0	0	0	37	0	0	0	29	0	0	74	55	75	3	154	29	1	41	64	34	2	24	2	2
5	5	120	1	0	1	161	0	2	3	0	0	152	69	2	10	2	56	0	60	14	1	5	40	3	6	3	0	0				
6	138	244	0	74	0	0	335	0	22	0	0	0	29	0	0	0	70	0	194	50	0	11	53	0	0	0	0	20	10			
7	1	161	0	8	38	2	0	167	16	0	0	0	15	1	36	0	8	1	99	8	8	1	42	0	0	0	9	0	0			
8	115	205	16	24	0	3	22	16	268	4	2	39	26	19	36	66	116	9	22	101	28	106	226	102	1	17	10	9				
9	6	96	8	0	0	0	0	0	4	105	0	99	42	4	2	0	39	0	44	16	3	2	28	4	4	6	0	0				
10	8	91	4	0	0	0	0	0	2	0	100	93	44	4	6	0	32	1	44	9	1	5	29	6	6	3	0	0				
11	7	328	18	2	37	152	0	0	39	99	93	425	156	2	14	6	174	2	160	47	4	44	138	46	17	8	1	2				
12	101	360	12	37	0	69	29	15	26	42	44	156	404	14	41	65	9	26	217	23	36	30	88	24	28	24	24	9				
13	250	218	2	0	0	2	0	1	19	4	4	2	14	255	79	2	76	6	61	17	0	8	25	12	5	1	0	0				
14	233	321	0	0	74	10	0	36	36	2	6	14	41	79	448	164	30	1	3	7	77	77	64	3	4	44	11	12				
15	0	212	2	0	55	2	0	0	66	0	0	6	65	2	164	297	31	1	0	4	0	146	57	88	0	1	0	0				
16	299	414	7	28	75	56	70	8	116	39	32	174	9	76	30	31	565	16	26	60	82	139	165	98	5	47	28	22				
17	12	106	33	0	3	0	0	1	9	0	1	2	26	6	1	1	16	110	56	5	3	9	0	0	0	0	0	0				
18	679	1078	9	240	154	60	194	99	22	44	44	160	217	61	3	0	26	56	1300	17	88	1	136	0	21	8	167	144				
19	153	234	24	40	29	14	50	101	16	9	47	23	17	7	4	60	5	17	282	39	46	110	31	2	2	22	16					
20	314	280	0	1	1	1	0	8	28	3	1	4	36	0	77	0	82	3	88	39	315	16	40	16	13	20	9	10				
21	71	213	15	18	41	5	11	1	106	2	5	44	30	8	77	146	139	3	1	46	16	277	94	124	0	26	9	4				
22	163	367	9	49	64	40	53	42	226	28	29	138	88	25	64	57	165	9	136	110	40	94	476	63	19	30	14	12				
23	64	144	24	8	34	3	0	0	102	4	6	46	24	12	3	86	98	0	31	16	124	63	200	1	6	1	2					
24	23	32	0	0	2	6	0	0	1	4	6	17	28	5	4	0	5	0	21	2	13	0	19	1	413	0	0	0				
25	63	83	15	0	24	3	0	9	17	6	3	8	24	23	1	44	47	0	8	2	20	26	30	6	0	126	4	3				
26	226	216	1	0	2	0	20	0	10	0	0	1	24	0	11	1	28	0	167	22	9	14	1	0	4	228	4	0				
27	192	180	1	0	2	0	10	0	9	0	0	2	9	0	12	0	22	0	144	16	10	4	12	2	0	3	4	193				

Figure 12.4 Cross-tabulation showing numbers of agents in VirPak, baseline condition at t=0 with the number of agents containing each possible pair of identities. Identities commonly present together in agents at t=0 are deemed to have affinities for one another, and vice versa. Numbers highlighted in green indicate the total number of agents with that identity in their repertoire.

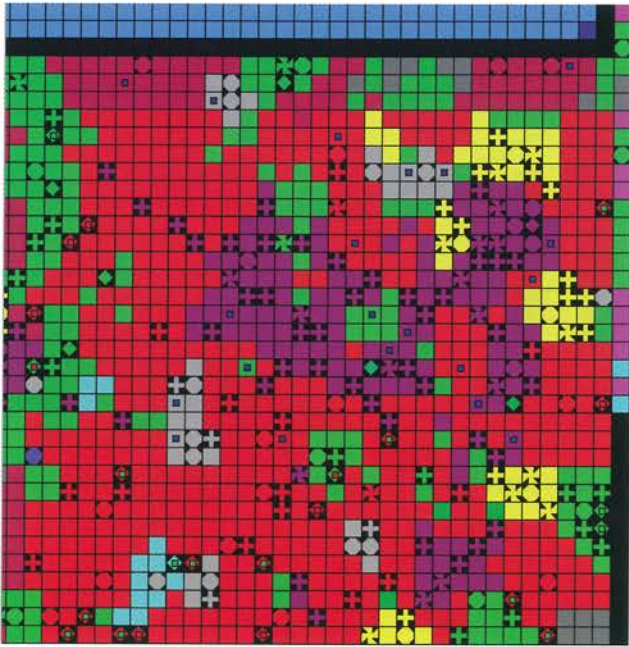


Figure 12.5 A portion of VirPak ($t=8$), focused on the northern Punjab within which the national authority structure is most firmly entrenched. The display is magnified to help identify the different icons representing agent classes discussed in this section.

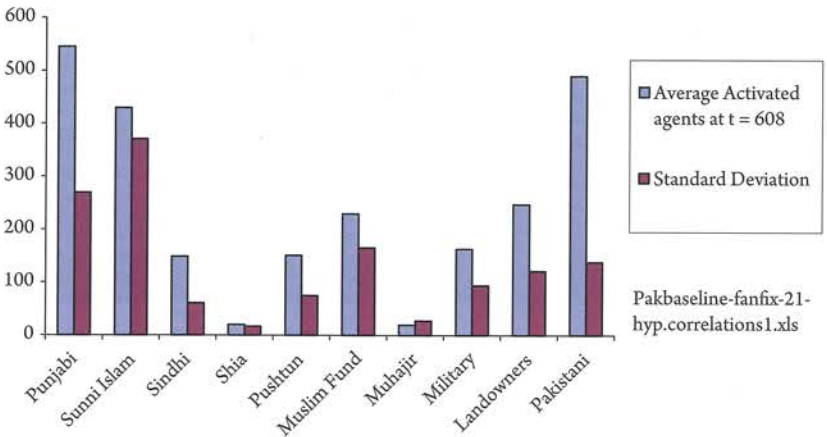


Figure 12.6 Average Activation Prevalence of Leading Identities in VirPak $t=608$

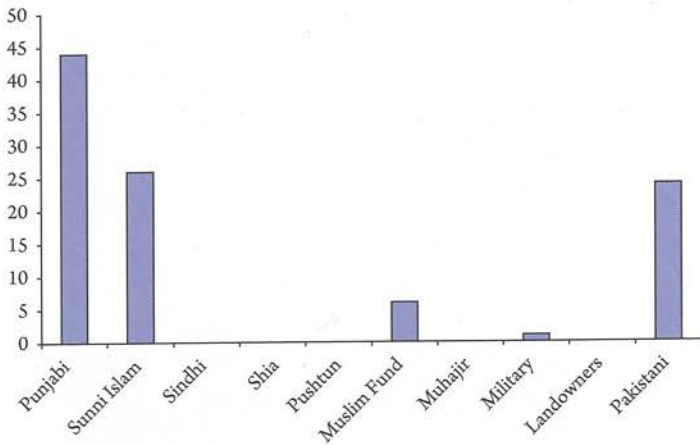


Figure 12.7 Plurality Rates Across 100 Baseline VirPak Futures of Selected Identities, t=608

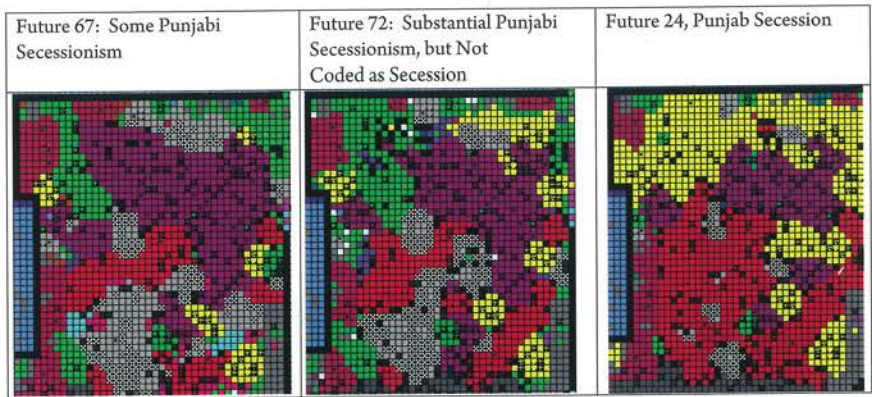


Figure 12.8 Three examples of Punjabi secessionism. Highlighted cells represent Punjabis publicly affiliating with landowners.

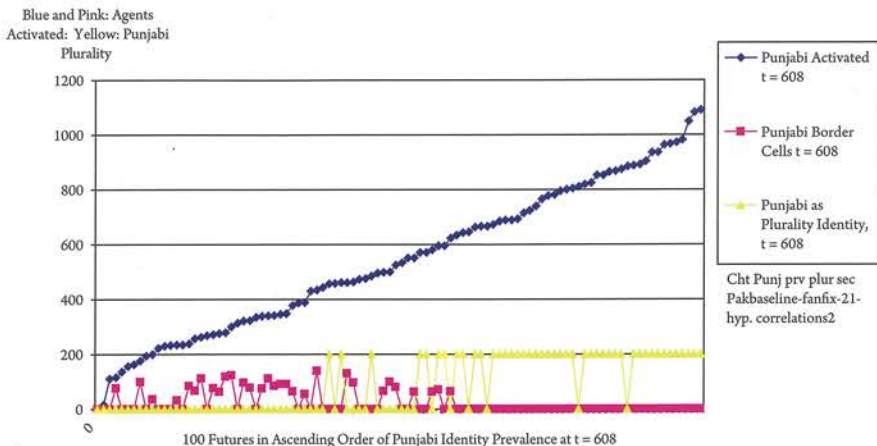


Figure 12.9 Patterns of Punjabi Prevalence, Plurality, and Secessionism

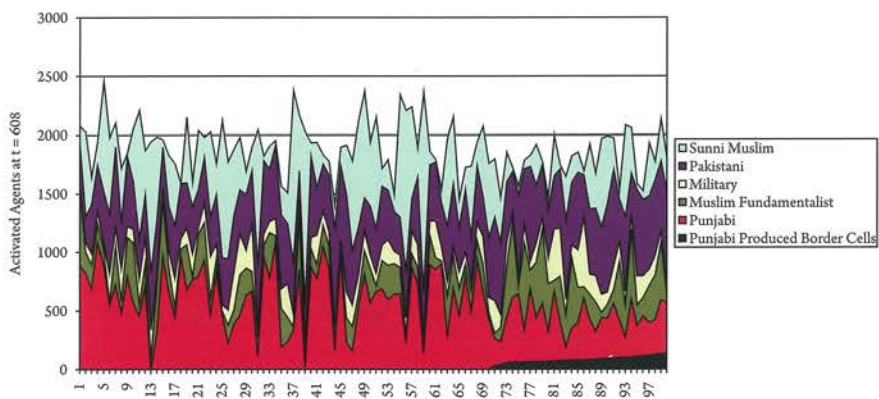


Figure 12.10 Prevalence of Selected Identities: Sorted by Punjabi Secessionism

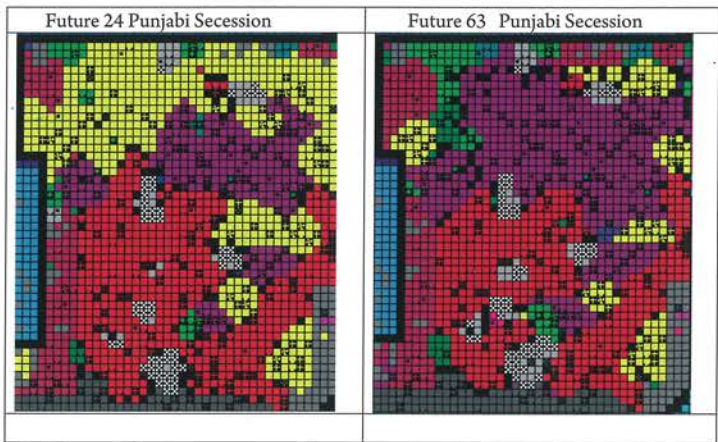


Figure 12.11 Punjabistan Secession in Two VirPak Futures: Highlighted cells represent Punjabis publicly affiliating with landowners.

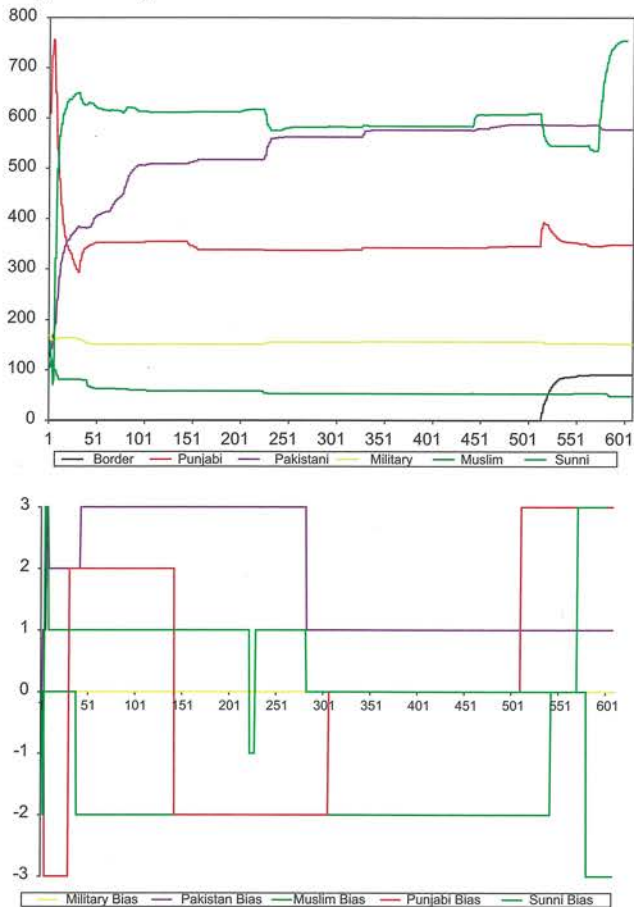


Figure 12.12 Trajectories of Activation by Competing Identities and Bias Assignment Histories—Future 46 of VirPak

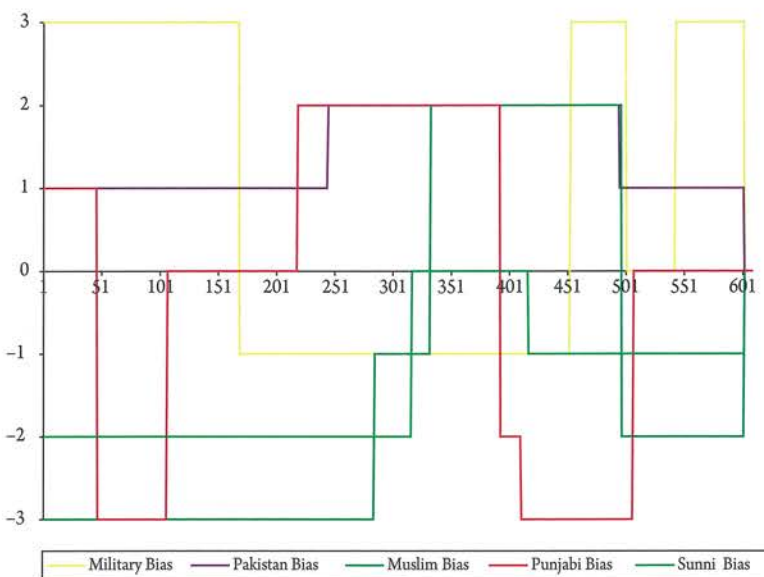
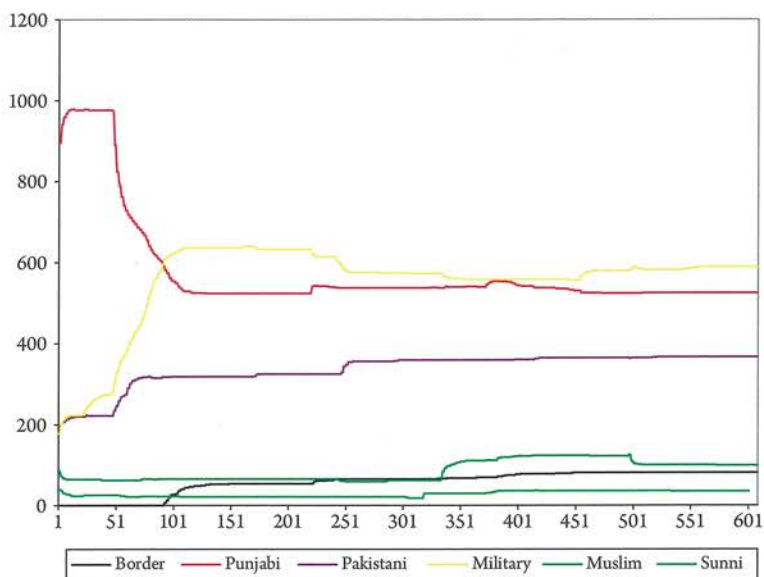


Figure 12.13 Trajectories of Activation by Competing Identities and Bias Assignment Histories—Future 24 of VirPak

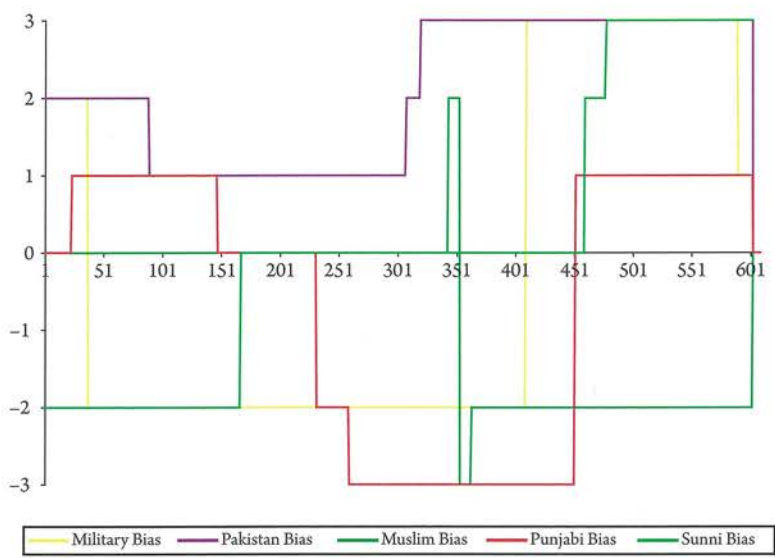
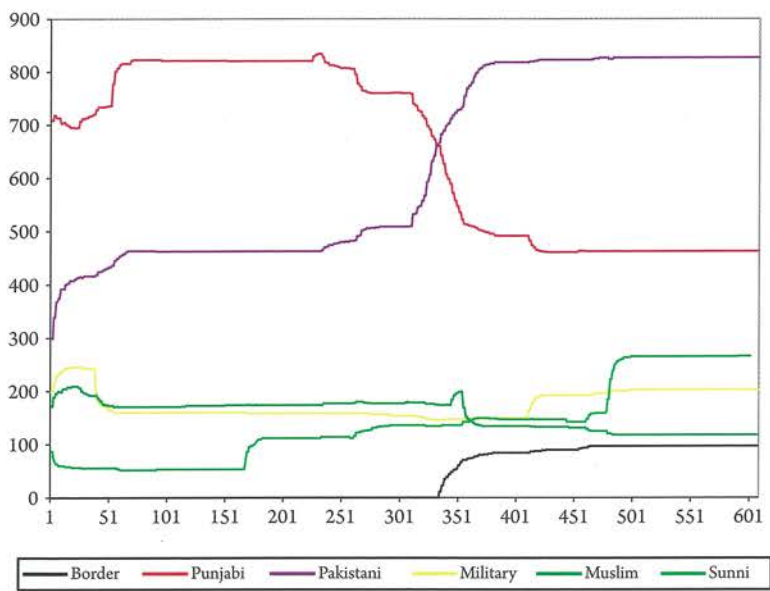


Figure 12.14 Trajectories of Activation by Competing Identities and Bias Assignment Histories—Future 63 of VirPak

significantly more work.²⁴ Theoretically there could be several routes to Punjabi secession consistent with the algorithms and the initialization conditions contained in VirPak and consistent as well with existing theories of secessionism.

1. Punjabis could begin as a small regionally dominant minority, alienated from the state and other dominant groups, but not strong enough to launch a secessionist movement. Favorable circumstances might then attract more agents to publicly affiliate with Punjabis against a dominant identity group with *relatively* little support among Punjabis (e.g., Muslim fundamentalists). If those Punjabis sharing this alternative leading identity chose to affiliate with it, it could then lead to geographically concentrated masses of Punjabis lacking political or cultural connections to the new dominant group. The result could be secessionism and the production of a boundary separating "Punjabistan" from the rest of Pakistan.
2. Punjabis could constitute a large but not dominant proportion of the Pakistani political space. If a majority or even a large minority of publicly affiliated Punjabis held the plurality identity in Pakistan within their repertoires, secessionist pressures would be weak or nonexistent. But if a third identity, one not shared widely in the Punjabi community, suddenly and successfully challenged the dominance of the Punjabi-friendly identity, the Punjabi community as a whole could find itself suddenly alienated from the dominant group or groups in the country. This sequence and set of circumstances could unleash a powerful secessionist movement, capable of leading to a secession boundary between Punjabistan and the rest of Pakistan.
3. Punjabis could enjoy the dominant position in Pakistan, assisted by but dominating the Pakistani government identity, traditional Muslims, and/or the military. If specific circumstances, however, led to a sharp increase in the popularity of one of these identities and if that were associated with a sharp drop in the popularity of the Punjabi identity (e.g., as a result of effective government sponsored land reform in the rural Punjab, external support for the Pakistani military, or mass defections of traditional Sunni Muslims to the fundamentalist banner), the previously dominant Punjabi community could quickly find itself in a subordinate and threatened position. Depending on how widespread within the Punjabi community were affiliations to the newly ascendant identity group, strong secessionist pressures could develop leading to a substantially sized but culturally compact "Punjabistan."

²⁴ It is instructive to consider that a more finely grained analysis of trajectories and sequences differentiating among similar trajectories on the basis of differences in particular sub-regions or sub-identities that participated in different ways to push secessionism futures toward outright secessionism, or prevent it, would require the same *kind* of analysis that a scholar using conventional techniques would need to undertake—a scholar somehow fortunate enough to have access to 100 different thoroughly documented actual histories of Pakistan from 100 parallel but not precisely identical universes.

Although each of the trajectories leading to substantial secessionism was unique, the dominant sequence within those VirPak futures was item 3. Indeed both futures coded as actual secession followed this particular storyline.

To be sure, there was one substantial VirPak future that followed the trajectory described in item 1. In Future 46 the traditional Sunni Muslim identity dominated VirPak in tandem with a slightly smaller but still potent Pakistani governing identity, with Punjabis a distant third. In the context of that set of relationships, many Punjabis retained their Sunni Muslim identity but were not affiliated with the Pakistani identity. When circumstances led to a sudden move by many Punjabis who had publicly affiliated as Sunni Muslims to adopt instead an explicitly Punjabi stance, Pakistani became the dominant identity in VirPak. This development confronted the mobilizing but still subordinated Punjabis with a governing apparatus from which they had become alienated. The result was a brief but potent eruption of Punjabi secessionism.

In the majority of futures containing substantial Punjabi secessionism, however, the impetus for secession arose from Punjabis being themselves displaced as the group dominating the Pakistani political landscape. The cascade of change in political affiliations associated with this displacement increased the level of alienation between the Punjabi community as a whole and the newly dominant identity. That is, the proportion of agents activated on Punjabi but retaining the dominant identity in their repertoires fell sharply. This unleashed Punjabi secessionism. Punjabi secessionism and secession was thus closely associated with what may be understood as an experience of intense and rapid "relative deprivation," as a Punjabi community with its own recent domination of the country as its referent, and enjoying control over the governing structures within the rural Punjabi heartland, moved toward independence by trading a declining position in a transforming Pakistan for Punjabi rule over its own region as an independent state. Both futures featuring the emergence of Punjabistan correspond to this pattern, though in Future 24 the cascade to the challenger identity and the production of a "rump" Punjabi community alienated from the newly dominant identity or coalition of identities occurs earlier than in Future 63.

For the particular futures described here (46, 24, and 63) Figures 12.12, 12.13, and 12.14 show the changing numbers of activated agents on key identities in the top row and the pattern of bias assignments (negative and positive) for those identities, over time, in the bottom row (see color plates 12.12, 12.13, 12.14).

So to the extent that our baseline simulations of VirPak model a representative array of the actual Pakistans lying within a relatively accessible region of the state space of possible Pakistans, we may advance the following conclusions.

1. Punjabi secessionism is not only possible but stands as a more potent challenge to the integrity of the country to more commonly discussed threats of

- secession that have emanated from Baluchistan, the Sindh, Seraiki region, or the Pushtun-dominated NWFP.
2. The threat of Punjabi secessionism is likely to be sharpest precisely when the government of Pakistan, alone or in partnership with other (non-Punjabi-oriented groups), makes progress toward establishing more thorough and effective governance throughout the country. On the other hand, it can also arise in reaction to an ascendance of Muslim fundamentalism within the state.
 3. Although secession of Punjabistan is unlikely, it is possible.
 4. Based on the most common route to potent center secessionism in Pakistan, strategies that present themselves for reducing that threat in association with desirable democratic and economic reforms include maintaining a strong identification of Pakistan as a state with traditional Sunni Muslim values; promoting civic identification through enriched educational programs within the Punjabi heartland; and recruiting civil servants who can remain proudly and publicly Punjabi while carrying out their duties as representatives of the "Pakistani" state.
 5. Punjabi secessionism, and Punjabistan—when it emerges in VirPak—seems primarily a rural phenomenon. The leadership apparatus that falls under the control of the secessionists mainly includes elements of the national bureaucracy located in the Punjabi heartland, provincial legislators, landed oligarchs, and local Punjabi clerics. The administrative, institutional, and military core of the Pakistani state remains outside the ambit of Punjabi secessionism. This suggests, first, why successful Punjabi secession is so unlikely, and second, that should a Punjabi secessionist movement actually produce a Punjabistan it might not actually spell the end of the Pakistani state, *per se*. Instead, it more likely set the stage for a new kind of struggle over the terms of political re-integration.

More generally, our exercise suggests the utility of computer-assisted agent-based modeling and the production of large batches of virtual futures for studying patterns of outcomes, both possible and probable, that may arise from the same ethnic demography. It also suggests the crucial role this methodology can play in the systematic study of "rare events" such as center secession.