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## SPATIAL AND HISTORICAL DETERMINANTS OF SEPARATISM AND INTEGRATION

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*The people are the land, and the land is the people.*

Fijian proverb,  
cited in Robie (1989)

*Language is the essence of human existence.*

Maori proverb,  
cited in Fleras et al. (1992)

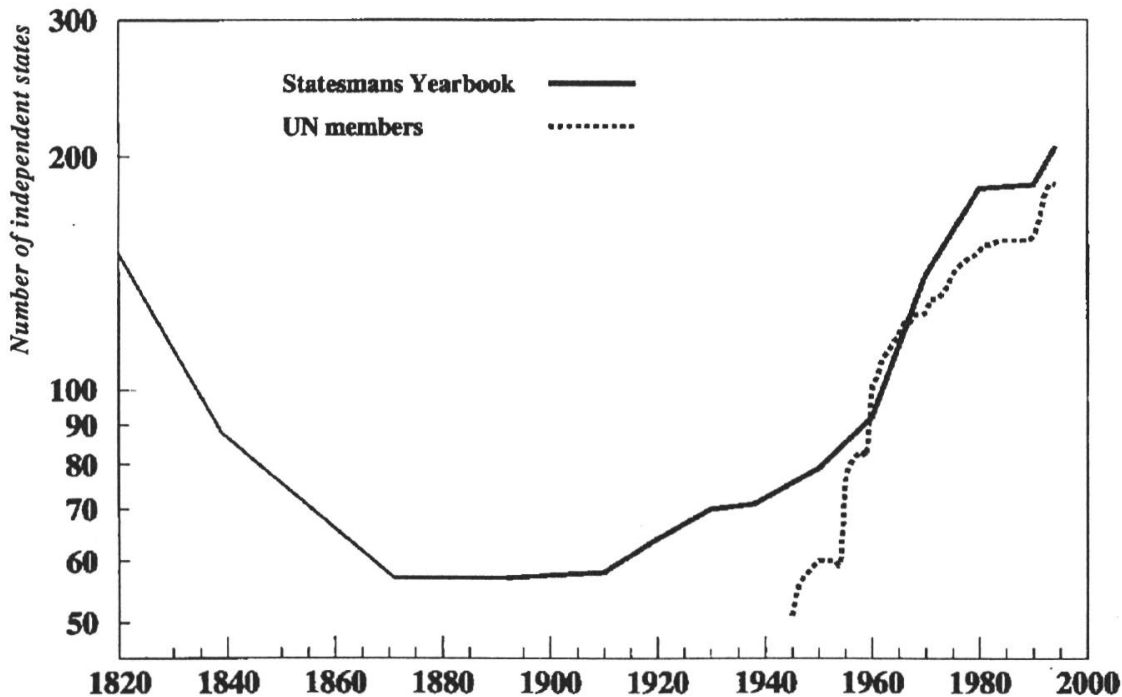
*To speak the same language as one's neighbours expresses solidarity with those neighbours; to speak a different language from one's neighbours expresses social distance or even hostility.*

Leach (1954)

### 1. Introduction

In the introduction of "Language and ethnic relations in Canada" S. Lieberman (1970) pointed out that "the book stems from a curiosity about why groups in contact maintain their distinctive languages over the centuries in some countries, but elsewhere give up their native tongues in a few generations". This question is at the heart of the present paper. What makes it perhaps even more important in the late twentieth century is the following observation. Throughout the twentieth century the number of sovereign countries has grown steadily, at first slowly and then, after World War II, more and more rapidly (Figure 1). The current trend sharply contrasts with the evolution during the nineteenth century. Although the latter has been referred to as the century of nationalities, a significant fall in the number of sovereign states occurred between 1850 and 1900, mainly as a result of the formation of the German Empire (and in spite of the disintegration of the Ottoman Empire). The obvious question then is whether

Figure 1  
Evolution in the number of independent states



The huge decrease that occurred in the first half of the 19th century was mainly due to the progressive unification of Germany. The first step took place in 1803; there were at that time about 500 sovereign or autonomous kingdoms, bishopric and other ecclesiastical territories; a second step was the dissolution of the Holy Roman Empire in 1806. In 1839 there still were 31 states within the German Confederation. *Sources: Statesman Yearbook (various years); Passant (1960); U.N information leaflet about membership and admission dates.*

the current trend will continue or whether a new coalescence cycle will set in.<sup>1</sup> True, especially between 1950 and 1970, the decolonization process accounted for the emergence of a great number of independent states. Yet, a substantial number of new sovereign states came into being through the disintegration of former federations. While being the most obvious illustration, the disintegration of the USSR (Dec 1991) is not the only example; the secession of Iceland (from Denmark, 1944), of Singapore (from Malaysia, 1965), of Bangladesh (from Pakistan, 1971), of Somaliland (from Somalia, 1991) of Eritrea (from Ethiopia, 1992) and the scission of Czechoslovakia (January

1 Strictly speaking such a question is beyond the scope of the present paper; it requires a dynamic model whereas the one developed here is a static, equilibrium model; preliminary indications on that question can be found in Friedmann (1977), Watkins (1990), Wittman (1991)

1993) are other well known examples. Furthermore, given the number of separatist movements that are currently in progress, there is a substantial probability that the number of sovereign states will continue to increase in the near future. Even countries with a federal system of government, such as India or Nigeria, have been confronted to that problem at an institutional level, as shown by the steady increase in their number of states: from 13 (plus 6 territories) to 25 (plus 7 territories) in India; from 4 to 30 in Nigeria.

In general terms the distinctive features of this paper<sup>2</sup> are the following.

- 1) The main purpose of this paper is to investigate the implications of what could be called the blend of language and homeland. The last term refers to a territorial base which has been occupied for a “long time” by a people. The importance of those elements is obvious: language is the medium of communication and, especially in rural societies, there is a strong connection between a people and its homeland. One should note that the present model does not apply to minorities characterized by non-linguistic ethnic factors.
- 2) The paper examines the long-term effect of spatial factors. Only little attention has so far been given to the spatial determinants of separatism, a notable exception being the work of Jenkins (1986) about Jura separatism in Switzerland. His conclusion is worth quoting for in a sense it provides the starting point for the present study: “This work [...] concludes that two geographical variables, the physical geography of the Bernese Jura and distance were fundamental during the period of approximately nineteen centuries following the birth of Christ in developing a distinctive identity for the region which became the Bernese Jura in 1815”. What tends to hide the impact of spatial factors is the fact that in short intervals (10 or 20 years) the role played by economic, cultural and political factors is so conspicuous that it tends to blur the slow but steady influence of geographical factors. Furthermore, the latter do not usually give rise to many spectacular events, a circumstance which makes them even less visible. They operate at micro- rather than at macro-historical level. Even a life-time may be too short a period to observe any significant effect of geographical factors; it is their steadiness which makes them important: an island remains an island, a peninsula remains a peninsula<sup>3</sup>. Political and economic factors in contrast are fairly variable; for instance, in the 19th century the French-speaking part of Belgium was economically the leading province; unemployment

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2 Let us mention that a more comprehensive version (Roehner, 1995) of this paper may be obtained upon request from the author.

3 Man-made transportation means may of course play a role; yet the effect of such agencies is in general very slow.



was on average much higher in Flanders; by the end of the 20th century the situation is reversed.

- 3) Our approach is very much in line with those of Connor (1972, 1994), Lieberman (1970, 1974, 1975) and Tilly (1986, 1992, 1993). More specifically, it owes much to Connor's and Tilly's emphasis on historical factors and it relies on Lieberman's analysis of language and demographic determinants. At the methodological level our strategy in implementing event analysis follows rather closely the methods pioneered by Tilly and Olzak (1986, 1992).
- 4) Our primary objective is to confront our model with empirical quantitative evidence. It is chiefly for the purpose of testability that our model uses only a small number of parameters. In so doing we do not wish to deny that other causes are present. Many ethnic, cultural or political factors are left aside, not because they are unimportant but because it would be difficult to include them in a comparative analysis based on quantitative data. While being probably unacceptable in a short-term perspective, such a drastic selection is less questionable in a long-run analysis.

We shall particularly investigate the impact of the following factors: (i) The length of the linguistic frontier (along with its "width", see below) (ii) The degree of identification a people has established with its territorial base in the course of history. We posit that these factors account for a large diversity of separatist movements in industrialized as well as in developing countries. The influence of the mobilization parameter which has been thoroughly studied particularly by K. Deutsch is represented in our model by the "width" of the linguistic frontier.

Although there is a vast literature on national integration and separatist movements, the studies focusing on the bond between mother tongue and homeland are not so numerous. It is hardly possible in the framework of this paper to give an account of the various models that have been proposed: comprehensive and very readable reviews are to be found in Connor (1994) and Premdas (1990) for instance. In this paragraph we first give a short account of the pioneering study of Lieberman et al. (1975) and of the work of Rokkan (1983, 1997); then we list a number of other important contributions. Lieberman's study (1975) examines the determinants of mother tongue diversity. It analyzes the evolution of language diversity in 35 states and over periods ranging from a century to a few years, depending on data availability. Various national characteristics are considered in relation to changes in language diversity. Two factors, the spatial isolation of language groups and official educational policies turn out to have a significant influence on language diversity. Spatial isolation was estimated through an index proposed by Bell (1954). In a sense, given the

reliance on indexes and aggregated figures, it can be said that the analysis by Liebersson et al. considered the problem in a macrosociological perspective. In contrast, through its emphasis on basic mechanisms, the present paper rather presents a microsociological view. Stein Rokkan's work laid firm foundations for the development of comparative studies of the process of nation formation. In particular, he devoted much attention to studying the relationship between nation building and languages; see in that respect chapters one to four of Rokkan (1997). Besides Liebersson's and Rokkan's, other works should be mentioned, in particular: Shibutani et al. (1965, L), Henderson et al. (1968, L), Liebersson (1970, T), Connor (1972, L), Snyder et al. (1972, T), Snyder (1976, L), Allardt (1979, T), Deutsch (1979, L-T), Svalastoga (1982, T), Deutsch (1984, L), Horowitz (1985, L-T), Fishman (1986, L), Olzak et al. (1986, T), Liebersson et al. (1988, T), Milne (1988, L), Premdas et al. eds (1990, L), Olzak (1992, T), Gottlieb (1993, L), Gurr (1993, T), McGarry et al. eds (1993, L), Connor (1994, L), Laitin et al. (1994, L); in this list the index L or T indicates whether the approach in the paper is mainly qualitative (L) or quantitative (T).

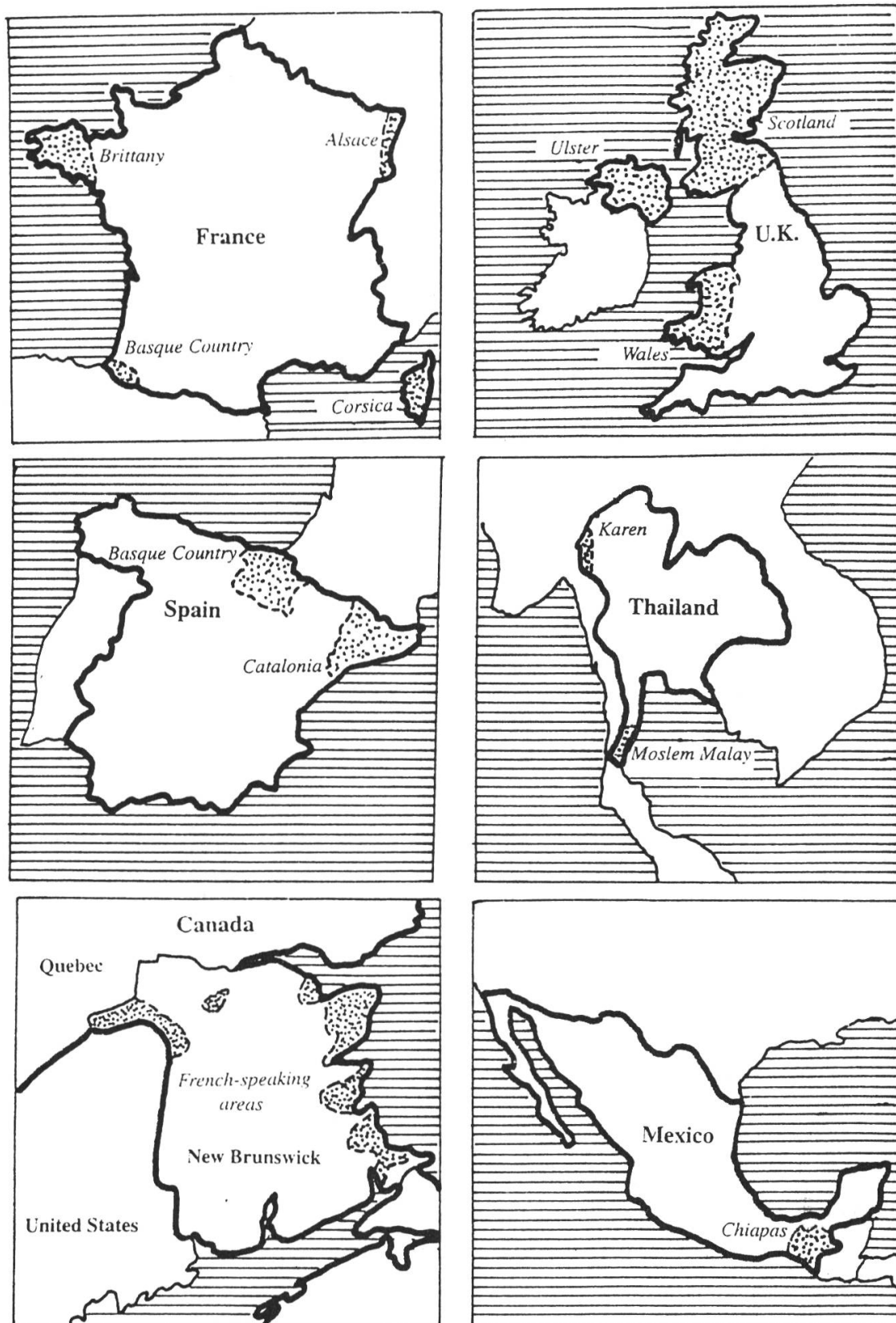
## 2. Qualitative analysis

### 2.1 *Spatial factors*

No better description can be given of what we shall for short call Coupland's diffusion effect than the following excerpt (Coupland, 1954): "Few Englishmen want to anglicise Wales, but the pressure exerted by the mighty neighbourhood to absorb the Welsh into the English way of life is no less powerful because it is unconscious. The age-long invasion never ceases; more and more English tourists are haunting the mountains and the coasts of Wales. Aided by the motor-car they penetrate to those districts where Welsh life has hitherto been least affected by English contact."

Fig. 2 schematically represents the regions in six different countries where there have been active autonomist movements between 1965 and 1995. All the regions are located at the periphery of the countries in a way which minimize the length of the borderline with the rest of the country: two regions are islands (Corsica and Ulster), three are peninsula (Brittany, Scotland, Wales), five are in contact with communities which share the same language (Alsace, Catalonia, Basque Country, Southern Malay province of Thailand, French-speaking areas in Canada's Maritime Provinces, Chiapas state in Mexico).

Figure 2  
Areas of communal revivals in six countries



Legend to Figure 2: As a rule these areas are remote from the core of the country and have minimal spatial contact with it. Very often they are part of a linguistic entity straddling the national borderline. For the Canadian Province of New Brunswick, the map shows the zones where the proportion of French-speaking people is higher than 75 percent. *Source: For New Brunswick: Verneix (1979).*

## 2.2 *Historical factors*

### 2.2.1 *Parsimony and paronymy in history*

History plays a fundamental role in shaping the collective psychology of peoples. For instance, if a nation has had the status of a sovereign state for a long time it will not easily accept to be incorporated in an alien state; Lithuania and Poland are illustrative examples. Similarly, if the conquest of a region has required a protracted and costly war, there is a high likelihood of subsequent rebellions: Algeria, Chechniya and Ireland are illustrative examples. Even once a nation has been subdued, the aspiration to sovereignty will remain strong for centuries. We shall generalize this kind of observations by assuming that those attitudes or actions that have been resorted to several times in the past will tend to repeat themselves in the future. This has become a fairly standard assumption in a number of different contexts as we shall see now.

- 1) Drawing upon a formidable array of empirical evidence, C. Tilly (1986, 390) introduced the conception of a people's repertoire of action: "Any population has a limited repertoire of collective action [...] People tend to act within known limits, to innovate at the margins of existing forms [...] People know the general rules of performance and vary the performance to meet the purpose at hand." For short, innovations are introduced parsimoniously and are closely connected to past history.
- 2) In the field of history, it has been shown (Roehner 1993a, b) that the above principle plays a key role in a wide range of historical actions. For the sake of brevity it has been referred to as the *paronymy assumption* (collusion and collision, or gradation and graduation are paronymic words). Paronymy means that, although not repeating themselves exactly, events tends to occur recurrently and in fairly similar forms.

In mathematical terms the paronymy principle can be stated in the following form: *The probability of a given action is in proportion to the number of its former occurrences.*

- 3) The use of historical analogies by political leaders is a well-known theme in political science (May, 1973; Khong, 1992). In a sense it can be considered as a particular application of the paronymy principle to prospective thinking.
- 4) In the field of operational research our assumption is embodied in the observation that, at least in the start-up phase of the learning curve, the completion of a fairly complex task requires less and less time and effort as it is performed again and again; typically, it takes only half as much time to perform a task for the 10th time than it took for the first time (Baloff, 1971; Hamblin et al., 1973).

### 2.2.2 *An illustrative example: Basque Provinces versus Catalonia (Spain)*

The following example illustrates how the above notions may be used. The present case has captured the imagination of a number of researchers because, within the same country, terrorist actions have played a major role in the Basque separatist movement while on the contrary political negotiations prevailed in Catalonia. To explain this contrast several mechanisms have been proposed which are reviewed in Laitin (1995). Let us see if there is a definite answer to this paradox in the general framework<sup>4</sup> of the paronymy assumption. Our contention is that throughout their recent history Basques were more prone to resort to political violence and military solutions than were the Catalans. Obviously, a thorough analysis would require much more space than we can devote to it here. Let us limit ourselves to discussing how both peoples reacted to and took part in the many internal conflicts that affected Spain during the 19th and 20th centuries. There have been five main wars: the four so-called Carlist wars (1833–1839, June 1848–April 1849, 1860, 1872–1874) and the Spanish Civil War (1937–1939). Let us examine them in turn.

- 1) Barres du Molard (1842) who was Charles V's chief of staff gave a detailed account of the battles that have been fought in the First Carlist War (1833–1839). Out of 63 battles, 59 took place in the Basque Provinces (Navarra included) while 4 took place in Castille. In spite of a substantial amount of social agitation in Catalonia no battle was fought there.
- 2) The Carlist attempts which took place in 1848–1849 and in 1860 were not very serious ones. In 1848, Alzola took command of the Carlists in the Basque Provinces; he was captured and shot (Clarke, 1906, 214). At the same time, Cabrera entered Catalonia through French Cerdagne (June 1848); he spent almost one year there without any significant fighting taking

4 Let us emphasize that it would be pointless to propose a specific "mechanism" for this single case; this would be nothing but a tautological explanation. Laitin is well aware of this pitfall since he tests his model on a second case, namely the contrast between Georgia and Ukraine.



place; in April 1849 he abandoned hope and crossed the frontier again. In April 1860, Don Carlos Luis landed with 3'500 troops near Tortosa (mouth of the river Ebro in the south of Catalonia). But the expected rising did not occur and he was captured without putting up any resistance.

- 3) The protracted war of 1872–1874 was marked by the following major battles: Orioquieta (Navarra, May 1872), Estella (Basque Provinces, August 1873), Tolosa (Basque Provinces, November 1873), Vich and Olot (Catalonia, January and March 1874), Teruel and Cuenca (Castille, July 1874), siege of Bilbao and Irun (Basque Provinces, 1874). Thus, out of 9 battles only 2 took place in Catalonia.
- 4) During the Spanish Civil War, the nationalists first subdued the Basque Provinces. From September 1936 to August 1937 nationalist forces proceeded from East (San Sebastian) to West (Santander). The campaign that took place in Catalonia (December 1938–February 1939) was one of the last phases of the war and was much shorter than the struggle in the Basque Provinces. The latter is said to have cost 50'000 deaths (Davant, 1975); we were unable to find a corresponding figure for the war in Catalonia, but it was certainly much lower.

Broadly speaking, on the basis of the previous historical record, one may say that the repertoire of the Catalan people, although it included different varieties of general strikes, urban uprisings or self-promulgated autonomy proclamations was rather poorly endowed in terms of stubborn fighting or military upheaval. This may account for the difference between Basque and Catalan autonomist movements after 1960.

### 2.2.3 *Basic tendencies in the manifestations of separatist disturbances*

In the introductory chapter of “European Revolutions” Charles Tilly develops a suggestive parallel between revolutions and traffic jams; he notes that like the latter, revolutions may be difficult to predict but that “once begun, they display recurrent patterns”.<sup>5</sup> In this paragraph we undertake the same kind of analysis: taking the occurrence of separatist struggles for granted we examine if there are some permanent patterns in the variety of their forms. The reader should be cautioned that such a study requires very detailed historical information which may not necessarily be available in every case; consequently, our results may appear somewhat partial and preliminary. From a detailed table published in Roehner (1995) we draw the following conclusions.

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5 In the case of traffic jams such patterns are particularly obvious: efforts of those on the periphery to exit from the scene and fierce competition for only small advantages for those in the middle.

- 1) For a given country there is a high level of permanence in the forms assumed by separatist disturbances in the course of time.
- 2) In industrialized countries there is a progressive decrease in the level of violence as one approaches the 20th century.

Let us discuss these two features in some detail. The second observation comes into proper light if one realizes that for the period 1945–1995 there was an obvious impossibility for minority groups in industrialized countries to wage war against the state. Nowadays, open warfare can only be used in tropical or mountainous regions and against rather weak states. The military defeat of the Sikhs in Punjab (1983–1992) in spite of their audacity and courage was just one other illustration of that evidence. These traditional forms of resistance being barred, new ones have to be invented; not surprisingly, this is a lengthy process whose completion may take well over one century.

Regarding the first point one should note that for early periods, before 1850, only *major* disturbances have usually been recorded. It is difficult to avoid such bias in analyzing and documenting non violent forms of separatist protest. Even for those events which are on record, one does usually not have the detailed information that would be required; a demonstration in Wales for instance is not identical to one in Catalonia. For all these reasons we shall have to restrict ourselves to only a few examples.

- 1) The first example concerns the celebration of the national day. Almost all national groups have chosen a specific national day, on which huge gatherings usually take place. In Wales for example the National Eisteddfod (which means session) assembles thousands of Welshmen; founded in 1450, it has become a famous national institution. Similar instances are the Diada Nacional (11 September) in Catalonia, the Day of the Basque Nation (12 April), the Day of the Jurassian People (8 September), the St Jean-Baptiste (24 June) in Quebec. In the 1970s national days were often marked by bitter street fighting between young demonstrators and the police.
- 2) As a second example let us observe that in Breton separatist struggles bomb attacks against French historical memorials constitute a well established tradition. During the last sixty years there have been at least four actions of that kind. (i) 7 August 1932: destruction in Rennes of the memorial commemorating the reunion of Brittany to France in 1532 (Sérant, 1971). (ii) 10 October 1973: destruction of the memorial commemorating the last public speech of general de Gaulle before his resignation in 1969. (iii) 26 June 1978: destruction by a fire bomb of an aisle of the Château of Versailles. (iv) November 1993: destruction of the ancient House of Parliament in Rennes; it was set on fire by demonstrators in doubtful circumstances.

Scotland too showed great interest in historical symbols, but used a different “repertoire”; an example was the theft of the “Lia Fail” (a stone used for the coronation of English kings and queens) in December 1950. Other examples are given in Roehner (1995).

### 3. Definition of the spatial and historical indexes

#### 3.1 How to characterize spatial separateness?

Spatial separateness will be measured through a normalized index whose magnitude is independent of the size of the region under consideration and defined in the following way.

*Definition 1.* We consider a region ( $a$ ) where a minority language is spoken. Let us introduce the following notations:

$l_0$ : length of the coast-line of  $a$

$l_+$ : length of the contact zone of  $a$  with the rest of the country ( $B$ ).

$l_-$ : length of the borderline (if any) of  $a$  with another  $a$ -speaking area ( $A$ ) belonging to a foreign country.

Then the geographical index of integration for region  $a$  is defined as:

$$g = (l_+ w_+ - l_- w_-) / (l_0 + l_+ w_+ + l_- w_-) \quad (1)$$

$g$  is normalized in the sense that it is comprised between  $-1$  and  $1$ :  $g = 1$  corresponds to a high level of integration;  $g = 0$  corresponds to a low level of integration;  $g = -1$  describes the case of a close link with a foreign country.

$w_+$  (or  $w_-$ ) is a parameter characterizing the intensity and frequency of the contacts of region  $a$  with  $B$  (or  $A$ ); it will be assigned the following values: 1 for traditional societies, 2 for rural societies, 3 for industrialized societies.

Let us illustrate the reason for subtracting the term  $l_- w_-$  by an example. Due to the contact zone between New Brunswick and Quebec it is certainly easier for the Acadians established in New Brunswick to maintain their French mother tongue than it is for those living in other Canadian Maritime Provinces; one only needs to mention the possible contacts with family members who emigrated to Quebec, the availability of local newspapers in French from nearby Quebec, the opportunity to watch Quebec's TV programs, etc.

It may be enlightening to apply the above definition to a few examples. Figure 3a shows a case where:  $l_- = 0$ ,  $l_+ \cong 0$ ; as a result:  $g = l_+ w_+ / l_0 \cong 0$ .



In actual examples,  $l_+$  is never completely negligible; the following are illustrative examples:

$a = \text{Wales}$	$B = \text{Britain}$	$g = 0.52$
$a = \text{Brittany}$	$B = \text{France}$	$g = 0.44$
$a = \text{Crimea}$	$B = \text{Ukraine}$	$g \cong 0.$

Fig. 3b shows a case where:  $l_0 = 0$ ,  $l_+ \cong 0$ ; as a result:

$$g = (l_+ w_+ - l_- w_-) / (l_+ w_+ + l_- w_-) \cong -l_- w_- / l_- w_- = -1$$

In actual examples  $l_+$  is never completely negligible; as a result the value taken by  $g$  very much depends on the respective magnitudes of  $w_+$  and  $w_-$ . An illustrative example is:

$a = \text{Jammu and Kashmir}$	$B = \text{India}$	$A = \text{Pakistan}$	$g = -0.30$
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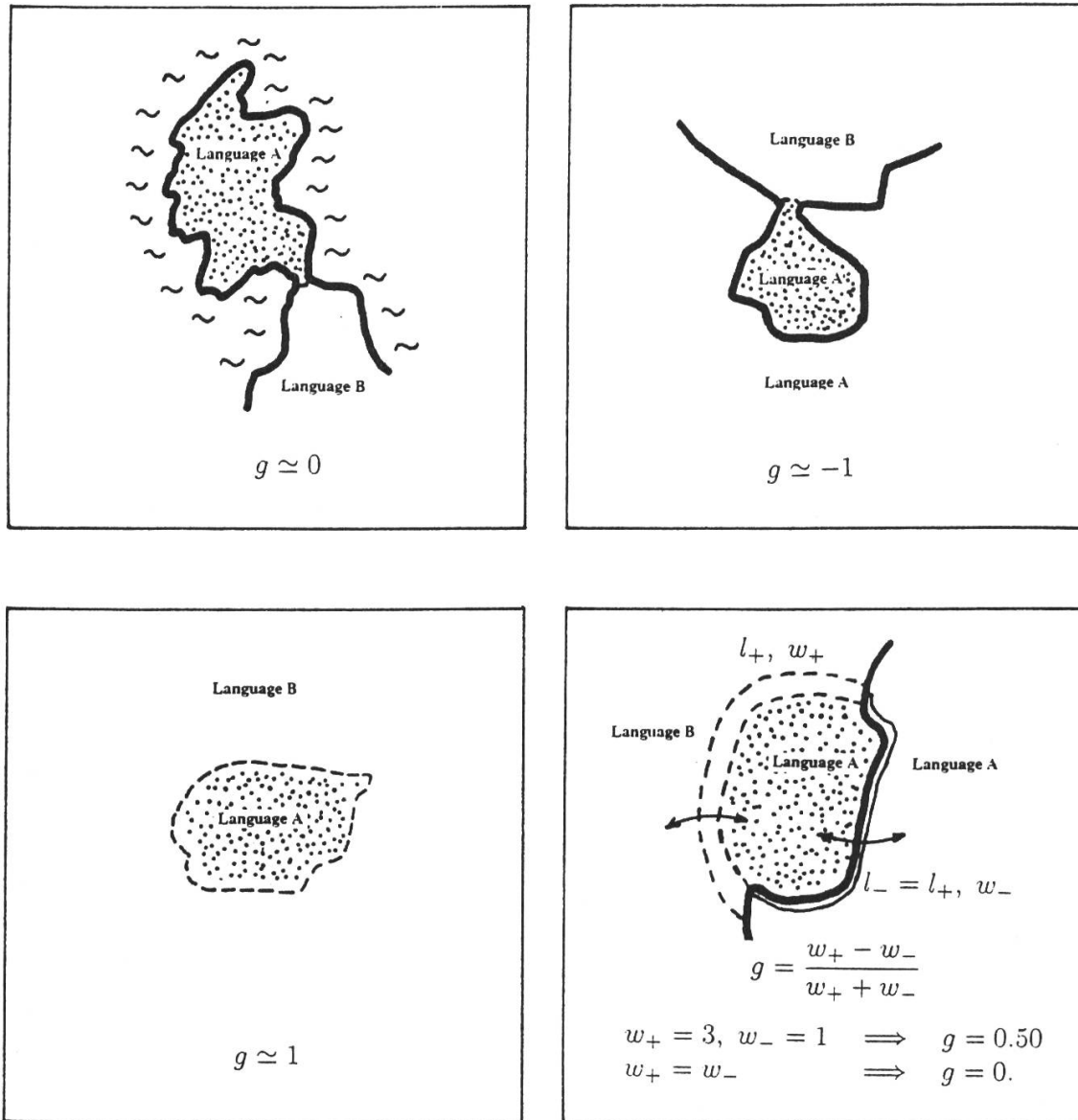
Fig. 3c shows a case where:  $l_0 = 0$ ,  $l_- = 0$ , as a result:  $g = 1$ . Illustrative examples are:

$a = \text{Amish region}$	$B = \text{United States}$	$g = 1$
$a = \text{Navajo Reservation}$	$B = \text{United States}$	$g = 1$

Fig. 3d depicts a more complex situation in the special case where:  $l_0 = 0$ ,  $l_+ = l_-$ ; then  $g$  only depends on the phenomenological parameters  $w_+$  and  $w_-$ :  $g = (w_+ - w_-) / (w_+ + w_-)$

So far we did not examine to what extent  $w$  is affected by the presence of a national borderline. Let us discuss the matter on the example of Alsace (France); in spite of the close links between Alsace and Baden in Germany, it is clear that  $w_+$  (contacts with France) is markedly greater than  $w_-$  (contacts with Germany), if only for the obvious reason that French is used as the principal language both in school and in the administration; while  $w_+$  is clearly equal to 3, the value that should be attributed to  $w_-$  is less obvious; indeed  $w_-$  is much more time-dependent than is  $w_+$ : the number of Alsatians working in Germany, the attractiveness of German TV programs, and many other similar conditions are likely to change fairly rapidly in the course of time. Given all these uncertainties we selected  $w_- = 1$  as being a simple and not quite unreasonable figure.

Figures 3a, b, c, d  
Different configurations for the area of a minority language A



B denotes the language of the rest of the country;  $g$  denotes the spatial index defined in the text. State borders are represented by thick lines.

### 3.1.1 *The case of islands*

So far, we did not consider the case of islands. Our former definition would lead to:  $g = 0/l_0 = 0$ . While it is clear that islands are more loosely connected to the mainland than are peninsulas,  $g = 0$  is clearly too crude a value. The following definition provides a more sensible estimate.

*Definition 2.* We consider an island ( $a$ ) where a minority language is spoken. Let us introduce the following notations:

$d_+$ : average distance between the ports of  $a$  and those of the mainland ( $B$ )

$d_-$ : average distance between the ports of  $a$  and those of an  $a$ -speaking region  $A$  belonging to a foreign country.

$w_+$  and  $w_-$  have the same meaning as in Definition 1.

The geographical index of integration for the island  $a$  is defined as:

$$g = (1/D) (w_+ / d_+ - w_- / d_-) / (w_+ / d_+ + w_- / d_-)$$

where  $D$  is an "effective distance" (expressed in hundreds of kilometers) defined as:  $D = \text{Max}[\text{Inf}(d_+, d_-), 3]$ .

$g$  is normalized in the sense that it is comprised between  $-0.33$  and  $0.33$ .

As a matter of illustration, we apply the above definition to the example of the French Caribbean island of Guadeloupe; in this case  $d_+ = 7'000$  km; the nearest territory having Creole as its official language is Haiti:  $d_- = 500$  km; with  $w_+ = 3$ ,  $w_- = 1$ , we obtain:  $D = d_- = 5$  and  $g = 0.05$ .

One of the purposes fulfilled by definition 2 is to guarantee a smooth transition between the case of a peninsula (which is ruled by definition 1) and the case of an island. This can only be achieved in an approximate way however; indeed it is clear that coastal navigation plays a substantial role in the case of a peninsula, a factor which has been ignored in definition 1. Such inaccuracies should not be taken too seriously however for the main uncertainty stems in fact from the difficulty of obtaining reliable estimates for the mobilization parameter  $w$ .

### 3.2 *A quantitative statement of the paronymy hypothesis*

In section 2 the paronymy assumption has been introduced, and to some extent confronted with empirical evidence. Trying to encapsulate the complexity of those historical mechanisms into a single parameter may appear as a preposterous and naive attempt. Yet, such a simplifying step can hardly be avoided if we

insist on quantitative tests. We introduce an index aimed at assessing the intensity of separatist struggles in the following way.

*Definition 3.* We consider a region  $a$  which is the homeland of a minority; its resistance to assimilation is characterized by an historical index  $h$  defined in the following way:

- $h = 0$ , if the region has not been annexed
- $h = 1$ , if there has been a peaceful annexation and no subsequent separatist claims.

If there have been separatist disturbances, we take for  $h$  the logarithm of the total number of deaths.

There is a notable gap between definitions 1 and 2 which are about minority languages, and definition 3 which refers to separatist struggles. The reason for this shift lies in the fact that in analyzing historical records it is almost impossible to distinguish between the disturbances that may be attributed to language claims, to religious feelings or to ethnic and cultural specificities. In sum at the level of historical observation, we have to be content with an aggregated measure of separatism.

#### 4. Estimating relaxation times for minority languages

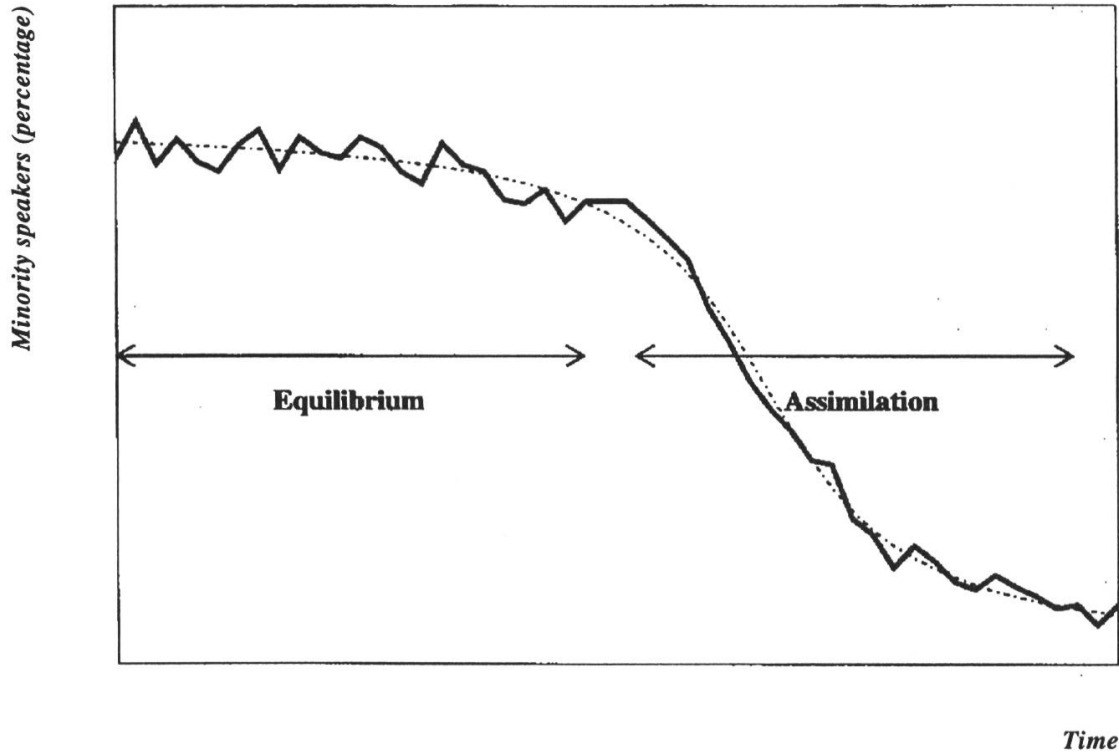
##### 4.1 *The evolution in the number of minority-language speakers*

In the life of a language<sup>6</sup>, two phases should be distinguished: the equilibrium phase and the assimilation phase; Fig. 4 schematically represents the evolution in a typical case. Notice that both phases may last for a very long time. In principle one should also consider the possibility that the decline may be checked as well as the possible occurrence of a revival phase. Such cases are very rare however. The so-called linguistic revival that occurred in the late nineteenth century in a number of countries (Albania, Bielorussia, Flanders, Hungary, Iceland, Norway, Poland, Ukraine, Uzbekistan, etc) were of a very different nature for in such cases the language was still spoken by the people as a dialect or more precisely as a variety of dialects; the revival rather concerned the recognition of that dialect as a proper language with its own literary

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6 In principle one should make a distinction between various ability levels. Four stages may be considered depending on whether a language is understood, spoken, read or written. For instance in the Basque Provinces (Spain) the respective percentages are: 50, 46, 25 and 11; in Catalonia (Spain) they are: 90, 77, 62 and 38 (Minority Rights Group, 1977). Unfortunately, only the number of speakers is in general recorded and usually with a fairly high margin of error (see in this respect the discussion in Kirk, 1946, 224).

Figure 4  
Two phases in the life of a language



The equilibrium phase corresponds to average stability in the number of speakers. During the transition to the fall-off phase, the assimilation rate gradually increases to a higher value characteristic of the assimilation phase.

traditions. In contrast, the revivals we consider here refer to the total number of speakers; to our knowledge the only revival of that kind currently under way might be that of the Welsh language; that revival still has to be confirmed by further statistics in coming decades.

As a first approximation, the decline phase for a language  $a$  may be described by the following equation:

$$p = p_0 \exp(-at) = p_0 \exp(-t/\tau) \quad (2)$$

where  $p$  denotes the percentage of  $a$ -speaking people. The coefficient  $a$  may be referred to as the *assimilation rate*; its inverse  $\tau = 1/a$  has a simple interpretation: in the time interval  $t$  the percentage  $p$  is divided by a factor 2.7;  $\tau$  is called the relaxation time of the assimilation phase. The quasi-equilibrium situation which is schematized by the left-hand part of the curve in Fig. 4 corresponds to a very small assimilation rate, i. e. to a very large relaxation time.

#### 4.2 Relationship between the assimilation rate and the geographical index $g$

The relation that we expect to hold between the assimilation rate  $a$  and the geographical index  $g$  is depicted graphically in Fig. 5. The following special cases are of particular significance:

- 1)  $g = 1$ : Rapid assimilation; example: the “melting-pot” period in the United States.
- 2)  $g = 0$ : Equilibrium; examples: French-speaking Swiss or Catalan-speakers in Spain.
- 3)  $g = -1$ : Strong language revival; a rather hypothetical situation as already noticed.

The tables 1 and 2 summarize a number of empirical results; the correlation between  $a$  and  $g$  turns out to be equal to 0.84. For the test of the theoretical curve in Fig. 5 to be completely satisfactory, additional data would be required

Table 1  
Evolution in the number of minority-language speakers

Region and language	Percentages of speakers		Relax. time century	Assim. rate 1/century	Sources
	First estim. %	Second estim. %			
Alsace, German dialect	1950: 40	1980: 25	1975: 0.64	1.56	Hérand
French Basque Provinces	1876: 88	1936: 66	1906: 2.08	0.48	La Croix (June 6, 1970)
	1936: 66	1970: 38	1953: 0.62	1.61	
Spanish Basque Provinces		1980: 28			Davant, Letamendia
Brittany, Celtic dialect	1974: 25	1991: 17	1982: 0.44	2.27	La Croix (Nov. 29, 1975)
					Le Monde (Mr. 31, 1991)
Catalonia, Catalan		1994: 68			Finan. Times (Mr. 3, 1994)
Romantsch speakers (Sw.)	1860: 42	1880: 32	1870: 0.74	1.35	Ann. Stat. de la Suisse
	1880: 32	1990: 6	1935: 0.42	2.38	Terra
French speakers (Sw.)	1880: 89	1941: 86	1915: 15.2	0.07	Ann. Stat. de la Suisse,
	1941: 86	1950: 85	1945: 7.69	0.13	Gazet. de Laus. (Aug. 28, 1994)
Wales, Welsh	1891: 50	1961: 26	1926: 1.0	1.0	Times (Nov. 23, 1970)
	1961: 26	1971: 20	1965: 0.38	2.63	The Guardian (Nov. 29, 1978)
	1971: 20	1981: 18	1975: 0.95	1.05	

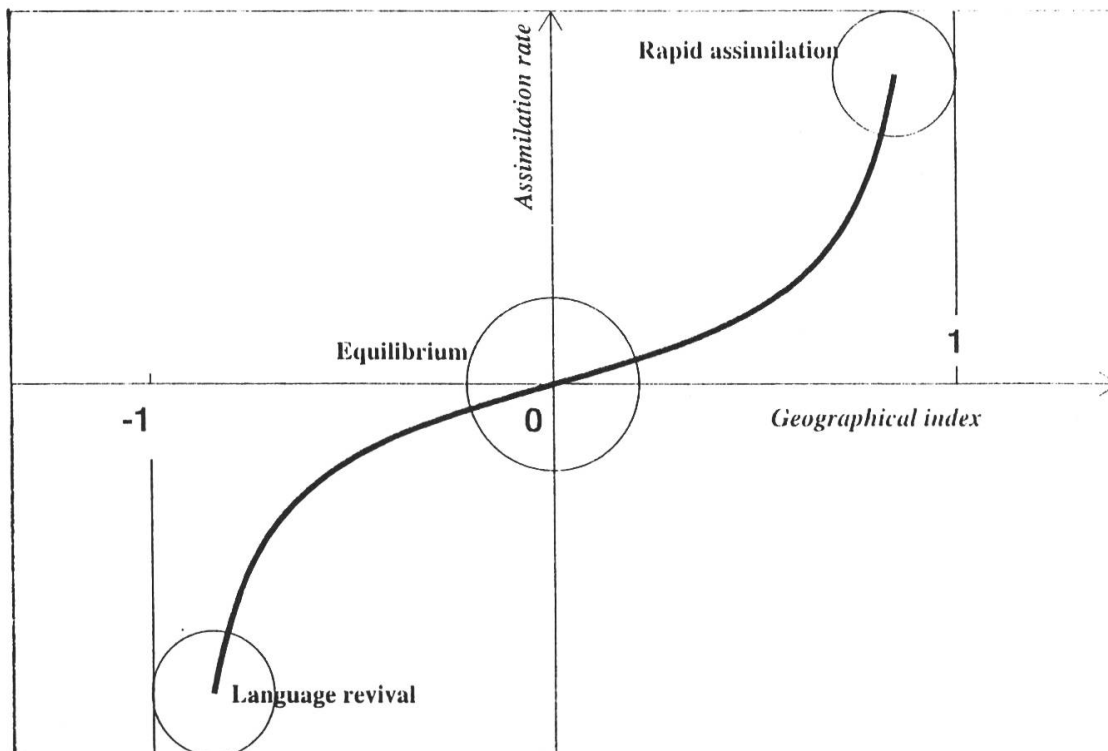
The relaxation time  $\tau$  and the assimilation rate  $a$  are defined through the relation:  $p_1/p_2 = \exp((t_1 - t_2)/\tau) = \exp(a(t_1 - t_2))$ , where  $p_1$  and  $p_2$  denote the populations of speakers at times  $t_1$  and  $t_2$ . A very long relaxation time is typical of an equilibrium situation. Most relaxation times appear to be decreasing in the course of time which shows a transition from a situation of equilibrium to an assimilation phase.

Table 2  
Relation between the geographical index  $g$   
and the assimilation rate  $a$

Region and language	Geographical index	Assimilation rate (period after 1945) 1/century
Alsace, German dialect	0.50	1.56
French Basque Provinces	0.45	1.61
Brittany, Celtic dialect	0.44	2.27
Romantsch speakers (Sw.)	0.83	2.38
French speakers (Sw.)	0.14	0.13
Wales, Welsh	0.52	1.52

The correlation is equal to 0.84 (95% bounds are 0.08 and 0.98).

Figure 5  
Expected relationship between the geographical index  $g$   
and the assimilation rate  $a$



especially in the remote parts of the curve, i. e.  $g < 0$  and  $g$  close to one. It can be noted that the assimilation rate is largely independent of the policy of the state. Thus, despite of the fact that Romansch has become a national language (though not an official language) in Switzerland in 1938, its decline, not only continued, but even accelerated. The assimilation rate for Romansch is of the same order of magnitude as the assimilation rates in more centralized countries such as Britain or France. While Romansch was retreating, French and Italian preserved their positions in Switzerland; in other words, the potential usefulness of the language and the geographical environment seem to be more important than linguistic policies.

#### 4.3 *Temporal shifts in language boundaries*

Figure 6 gives three examples of changes in language boundaries in the course of time. These maps emphasize one important characteristic of the phenomenon, namely its extraordinary slowness. By and large, the “language front” has been moving at a speed of about 8 to 15 kilometer/century. These figures are all the more striking when one realizes that these cases correspond to the expansion periods of major world languages (German, French and Spanish respectively). The present observations are consistent with the results obtained (in a somewhat different context) by Lieberman et al. (1975, 53).

### 5. The analysis of separatism

#### 5.1 *The data*

Separatism usually reflects many causes, whether linguistic, religious, cultural, ethnic or economic. One could even argue that in joining a separatist struggle each individual has his own motivations. As a result, it is almost impossible for an outside observer to distinguish between various sources of separatism. Our methodological choice therefore was to estimate the *overall* intensity of separatist struggles. To this end we converted all major events into a number of fatal casualties. In developing countries where separatist struggles often take the form of open warfare, this number is almost identical with the estimated number of deaths. On the contrary, in industrialized societies it provides an equivalent figure for the demonstrations, arson attempts, bomb attacks and other forms of protest. Specific details about equivalence factors are given in the appendix.



Figures 6a, b, c  
Temporal shifts in language boundaries

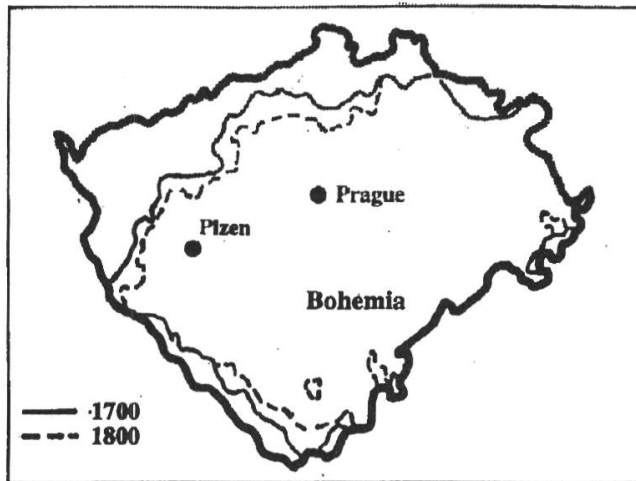


Figure 6a shows the development of German settlements in Bohemia, 1700–1800. North and West to Bohemia are the German provinces of Saxony and Bavaria. Source: Wiskemann (1938).

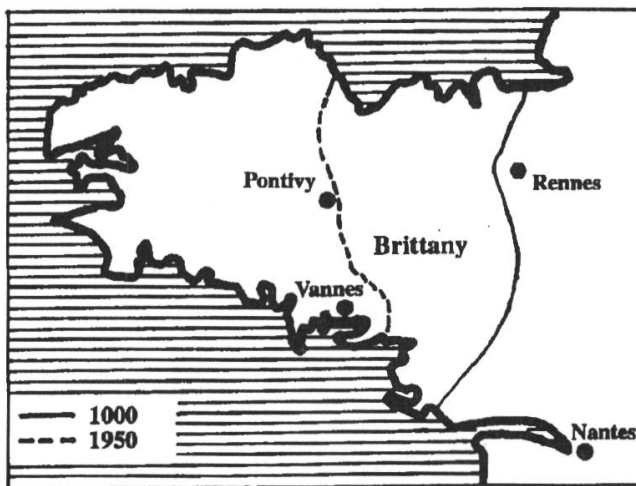


Figure 6b shows the slow displacement of the linguistic boundary in Brittany (France). Source: Sérant (1971).

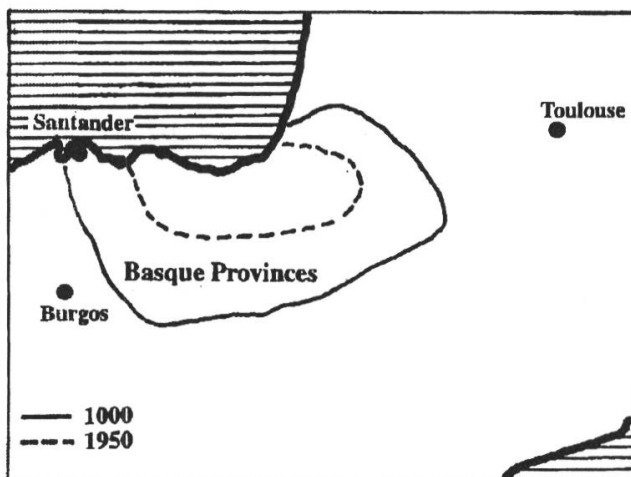


Figure 6c displays the gradual shrinking of the area in which the Basque language is spoken. Source: Davant (1975).

## 5.2 *The ceteris paribus condition*

In trying to assess the impact of the geographical factor  $g$  we are confronted with the *ceteris paribus* requirement. In order to make the test reliable one has to eliminate possible variations in factors not considered in the model. The following precautions are of crucial importance. (i) One should compare separatist movements which are more or less at the same stage. It would be pointless to compare a situation where national awakening is just under way (as in Peru or Mexico for instance) with another where national consciousness is fully developed (as in Punjab for instance). (ii) The type of the polity has an obvious influence on the level and forms of separatist disturbances. The latter do not take the same form in a nation that has a long democratic tradition or in one that has not.

The above qualifications are far less crucial in analyzing the impact of the historical factor for, in a sense, the magnitude of the historical index reflects (though for an earlier period) both the nature (more or less violent) of the nationalistic movement and the response (more or less tolerant) of the state.

## 5.3 *Findings*

Owing to the above arguments, we shall carry out the following tests:

- 1) The impact of the geographical factor  $g$  (taken alone) is analyzed for separatist struggles in France (9 cases): Fig. 7.
- 2) The impact of the historical factor  $h$  is considered separately first for “old” (i. e. European) countries, and then for “new” countries (6 and 9 cases respectively): Fig. 8a and 8b.
- 3) As a complementary test we examine whether the introduction of the geographical factor improves the fit already provided by the historical index: Fig. 8c.

### 5.3.1 *Geographical index versus separatist disturbances*

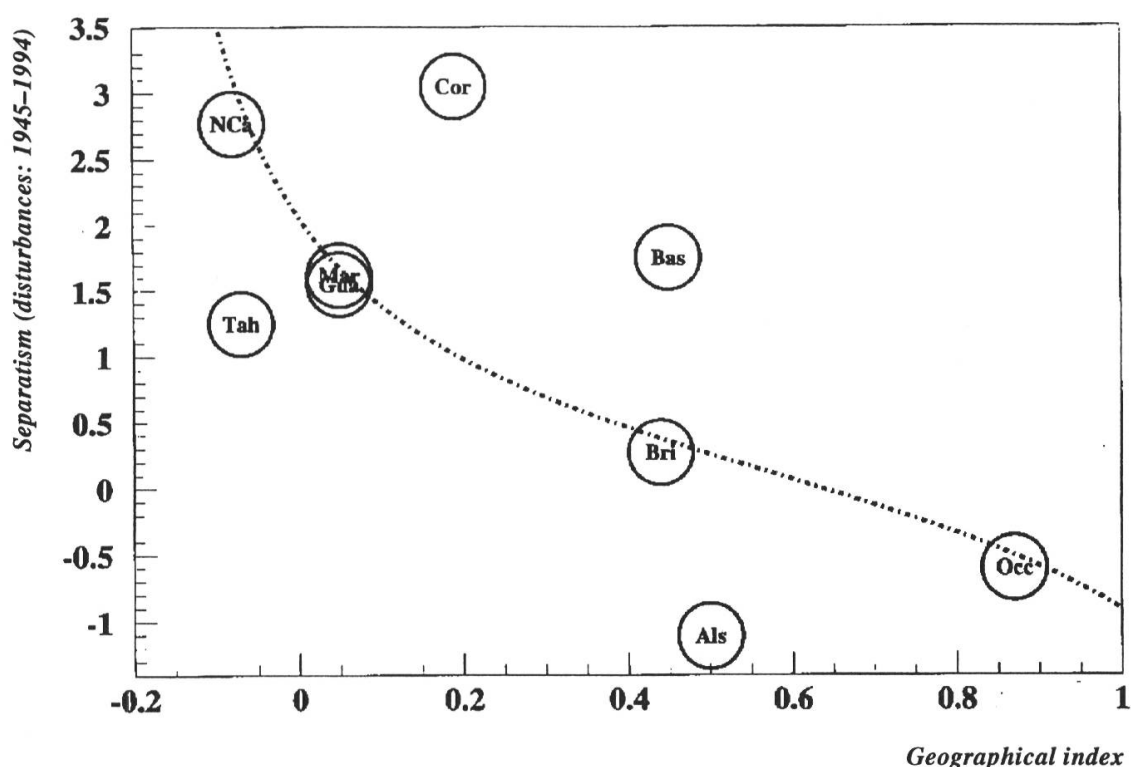
Fig. 7 shows the relationship between the spatial index  $g$  and the intensity of separatist disturbances as measured by the index  $d$ . The estimated equation is:<sup>7</sup>

$$d = \text{tg}(-1.89g + 1.1) \quad r = -0.77 \text{ } (-0.22, -0.95)$$

<sup>7</sup> The fact that the estimated equation is a tangent rather than a straight line comes from the fact that  $g$  is bounded between  $-1$  and  $1$ ; notice however that a linear fit is only slightly less effective:  $r = -0.71$ .

where  $r$  denotes the coefficient of correlation; the figures in parenthesis give the confidence interval to probability 0.95.

Figure 7  
Relationship between the geographical  $g$  and the level  
of separatist disturbances for French provinces



Als: Alsace; Bri: Brittany; Bas: Basque provinces; Cor: Corsica; Gua: Guadeloupe; Mar: Martinique; NCa: New Caledonia; Occ: Occitania; Tah: Tahiti. The correlation is equal to:  $-0.77$ .

### 5.3.2 Historical index versus separatist disturbances

a) Fig. 8a shows the relationship between the historical index  $h$  and the intensity of separatist disturbances for "old" countries. The estimated equation is:

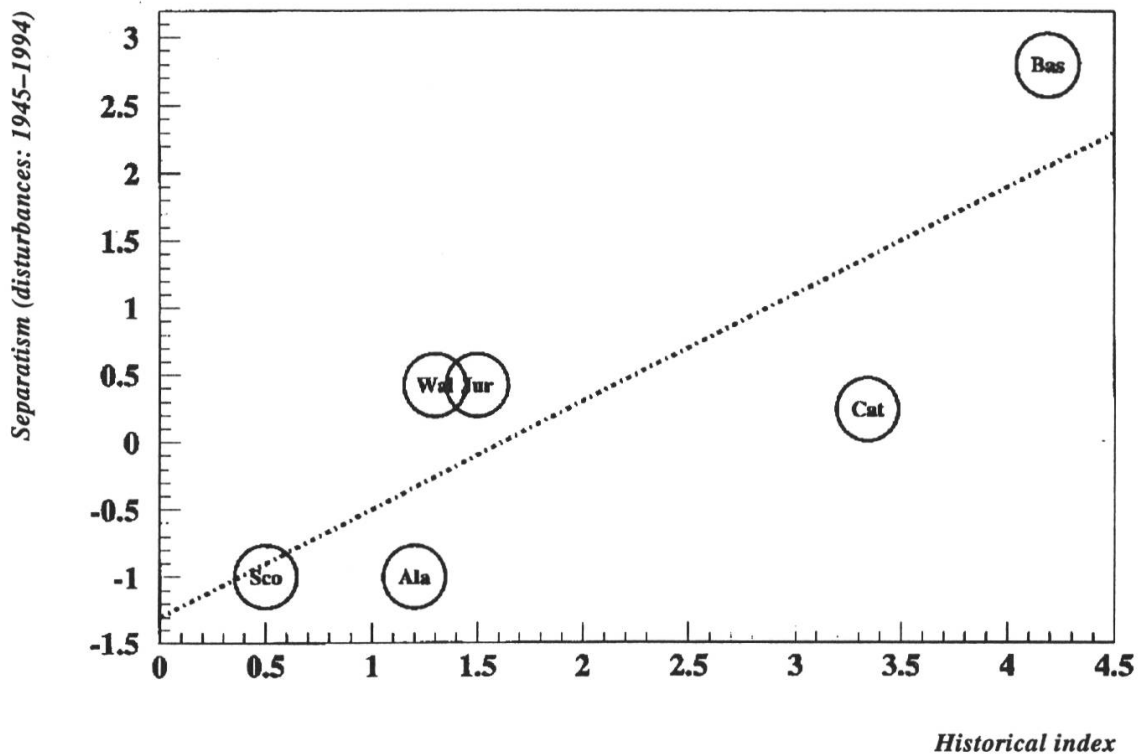
$$d = 0.80h - 1.30 \quad r = 0.83 \quad (0.05, 0.93)$$

b) Fig. 8b parallels Fig. 8a for "new" countries. The estimated equation is:

$$d = 0.73h - 0.34 \quad r = 0.68 \quad (0.04, 0.93)$$

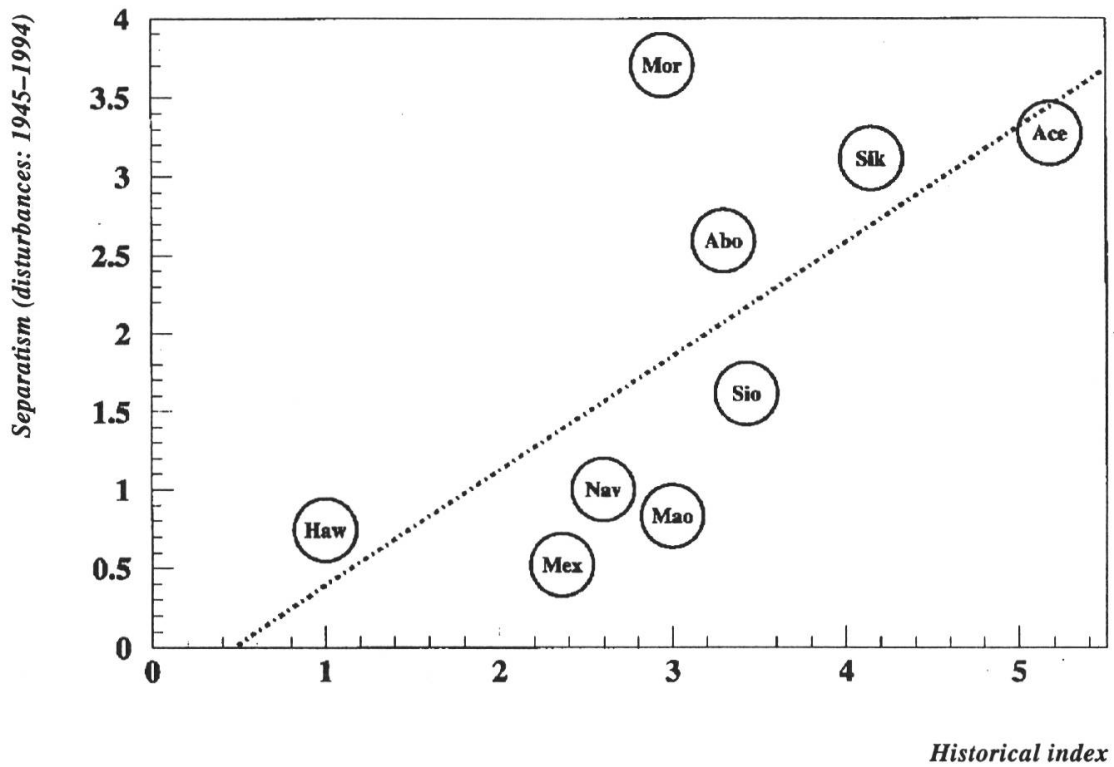
Figure 8a

Relationship between the historical index  $h$  and the level of separatist disturbances for “old” countries



Ala: Aland Island; Bas: Basque provinces (Spain); Cat: Catalonia; Jur: Bernese Jura; Sco: Scotland; Wal: Wales. The correlation is 0.83.

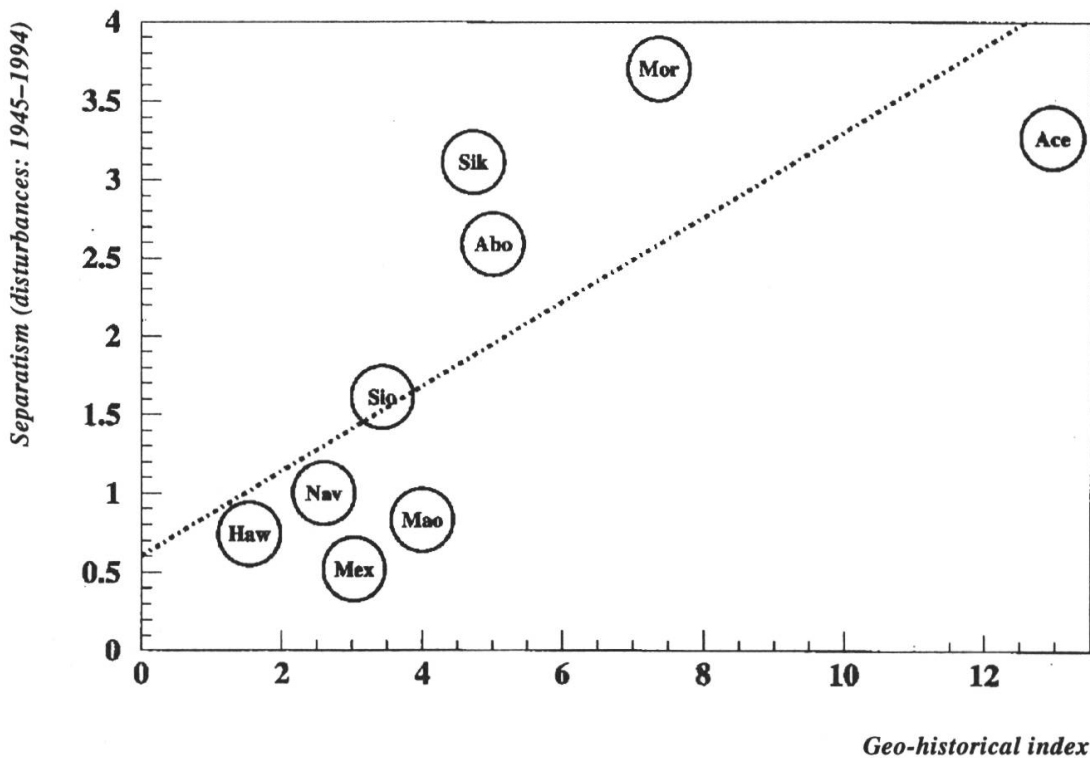
Figure 8b  
Relationship between the historical index  $h$  and  
the level of separatist disturbances for "new" countries



Abo: Australian aborigines; Ace: Aceh province (Indonesia); Haw: Hawaiians; Mao: Maori (New Zealand); Mex: Mexicans (Arizona and New Mexico); Moros (Philippines); Nav: Navajos (USA); Sio: Sioux (USA); Sik: Sikhs (India). The correlation is 0.68.

Figure 8c

Relationship between the geo-historical index  $h/g$  and the level of separatist disturbances for “new” countries



The symbols have the same meaning as previously. The correlation is 0.74.

### 5.3.3 Geo-historical index versus separatist disturbances

Let us examine if the previous statistical adjustments can be improved by combining the historical *and* the geographical index. Taking  $h/g$  as the new variable leads to the following estimates:

“Old” countries:	$d = 0.63 (h/g) - 1.96$	$r = 0.73$	$(-0.19, 0.97)$
“New” countries:	$d = 0.27 (h/g) + 0.60$	$r = 0.74$	$(0.11, 0.94)$

In other words, the introduction of  $g$  improved the fit in the “new” country case but failed to do so for the “old” countries. In a sense the contrary would have been more natural; indeed, for new countries time was somewhat too short for the geographical factor to deeply affect national loyalties. The reason for this counter-intuitive result is probably a mere statistical one: for old countries the correlation between  $d$  and  $h$  is already fairly high and further improvement is difficult.

#### 5.4 *Remark*

Needless to say, the form  $h/g$  is not the only possible functional form for the function  $F(h, g)$ ; it is just one of the simplest nonlinear forms; looking for a more effective form would require more data points than we have got here.

### 6. Conclusion

In this paper we focused on ethnic revivals based on homeland loyalties, in which linguistic factors usually play a prominent role. We presented a model aimed at describing the long-range trend of such phenomena. In a long-term perspective, spatial and geographical factors turn out to be of cardinal importance. Throughout this paper we have tried to look at diverse and seemingly unrelated episodes as manifestations of the same recurrent process in order to bring some kind of provisional order into a vast and chaotic field. Of the two determinants that we examined, namely the spatial and historical factors, the latter appears to be predominant in the sense that the strength of nationalist struggles is mainly set by former episodes and local traditions. But once the impact of this factor has been discounted, spatial separateness turns out to play a major role in determining the level of separatist struggles. Furthermore, spatial separateness turned out to be significantly correlated with the degree of language maintenance.

The present model has a number of straightforward implications. As an example let us consider the integration process in the United States. There are only two contiguous countries, namely Canada and Mexico. Canada being an English-speaking country (with the obvious exception of Quebec) there can be no major minority problem on the northern frontier. Our model would make us expect a different situation on the Mexican border; such an impression is indeed confirmed by the observation (Lieberson et al., 1975, 56) that, in New Mexico for instance, since 1846 only a small proportion of the Spanish-speaking people have shifted from Spanish to English.

#### 6.1 *An agenda for future research*

We are convinced that the fundamental mechanisms responsible for separatist tendencies have remained basically unchanged since the beginning of the 19th century. This claim was given some plausibility by examining a few examples for which data were available. Yet, for lack of quantitative historical evidence a systematic investigation was not possible. In this respect one should mention

the remarkable work performed by C. Tilly and his collaborators (Horn and Tilly 1986, Tilly 1992) for England (1758–1834) and also for France. Once a similar task has been carried out for other countries a systematic investigation of separatist struggles in the 18th and 19th centuries will become possible. Needless to say, in the case of South-East or South-West Asian countries this requires a working collaboration with local scholars and librarians. Another interesting issue would be to analyze the differences of separatist struggles in developing countries (see in this respect Strang, 1990; 1991) as compared to those in industrialized countries.

## 6.2 *The future*

Should one in coming decades expect a cardinal change in the way people of different strands are able to communicate with each other? In the wake of the computer revolution a substantial change may be brought about by the possible introduction of automatic speech translation. This would involve the following steps:

Language A → Speech recognition → Automatic translation A/B →  
Vocal synthesis of language B

It is of course difficult to guess how long it will take for such devices to become widely used: 30, 50 or 100 years? Yet, even 100 years is a short span of time in comparison to the stretches of several centuries required by the process of linguistic assimilation. Such a technological innovation would give multinational states a chance to realize their linguistic unity much more rapidly than could be expected otherwise.

## 7. **Appendix: The data base**

### 7.1 *Selection of the minority groups*

The forty minority groups documented in this paper should be seen as a sample of a larger set. In his comprehensive survey of minorities, T. Gurr (1993) listed 227 communal groups. But Gurr used a broader minority concept. Our definition corresponds approximately to two of Gurr's five subclasses, namely "ethnonationalist groups" and "indigenous people"; for these subclasses Gurr's survey lists a total of 121 groups. Our own selection of about 40 cases was based on the following criterions. (i) Data availability (ii) Within the previous constraint we tried to make the sample as representative as possible by selecting minority groups from the five continents.



The first criterion lead us to leave aside countries from the ex-USSR. For the same reason, minorities in Africa and Asia are under-represented. We also left aside those separatist struggles which, besides their domestic significance, have become major issues in international relations. This is for instance the case for Ulster, for former Yugoslavia, for the Kurd minorities, for Cyprus or for Palestine.

## 7.2 *Equivalence factors*

In order to build an intensity-index suitable for a great variety of separatist movements, we converted standard separatist events into equivalent numbers of deaths. The following factors have been used as equivalents for one death: (i) Demonstration of one million people (ii) 30 bombs or 60 arson attempts (iii) 30 non fatal casualties (iv) Petition of 100'000 people.

Except for the last factor, which has in fact been used rather rarely, the other equivalence factors are based on fairly realistic orders of magnitude. Once the equivalent number of deaths  $n$  has been obtained the intensity index is defined by the logarithm of  $n$  referred to the total minority population  $p$ :  $d = \log (n/p)$ . In taking the logarithm we follow a standard practice (see for instance Richardson) which has two distinctive advantages. (i) it keeps the magnitude of  $d$  of the order of a few units which is appropriate for an index (ii) it minimizes the incidence of estimation errors.

## 7.3 *Sources*

Our data set is mainly based on event analysis using major newspapers. Most valuable in that perspective has been the newspaper data base of the "Fondation Nationale des Sciences Politiques" (27 rue Saint Guillaume, Paris). It includes articles from a variety of papers (in English, French, German, Italian and Spanish) arranged by countries and topics of interest; the base covers the whole period from 1945 to present.<sup>8</sup> The coverage is not uniform of course, neither in time nor in space; that kind of bias is discussed in Olzak (1992); by and large, however, one may subscribe to S. Olzak's conclusion that "few alternative sources contain so much information". Anyone who has attempted a comparative study based upon published reports not originally prepared for this purpose has experienced the frustration that arises when the accounts become mute just at the point where some crucial proposition is to be

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8 To my best knowledge such a data base is unique in Europe. I express my sincere thanks to the staff for its amiability, competence and dedication.

tested. Needless to say, we also used monographs and journal articles whenever they permitted to fill a major gap.

The following books and articles have been used especially for the period prior to World War II (for the sake of clarity and concision, except when strictly required, we omit the year of publication). *Belgium*: Clough; *Scotland*: Birch, Coupland, Hechter, Leruez, Sorokin, Tilly (1993); *Wales*: Coupland, Gilbert, Sorokin; *Aland Island*: Barros, Denier, Mémoire, Singleton; *Alsace*: Histoire, La Collaboration, Reuss, Zeller; *Basque Province* (France): Letamendia; *Brittany*: Sérant, Dupuy; *Corsica*: Antonetti, Index du Temps, Pomponi; *Guadeloupe, Martinique*: Bangou, Burton; *New Caledonia*: La Mélanésie, Dousset-Leenhardt; *Occitania*: Histoire, Index du Temps, Zeller; *South Tyrol*: The Guardian (Dec. 14 1948, Oct. 5 1984); *Basque Provinces* (Spain): Barrès du Molard, Davant, Richardson; *Catalonia*: Dwelshauvers, Rossinyol, Tilly (1993), Richardson; *Bernese Jura*: Jenkins, Rennwald; *Quebec*: Oliver, Rebellion; *Chiapas*: Benjamin, Times (Ja. 17 1959); *Peru (South)*: Richardson; *Navajos*: Cook, Dennis, Kroeber; *New Mexico*: Meier et al.; *Sioux*: Dennis, Index du Temps, Richardson; *Australia* (aborigines): Hughes, Richardson; *Punjab*: Richardson; *Aceh Province*: Cribb, Richardson, Zainu'ddin; *South Moluccan*: Cribb; *Karen* (Myanna, i. e. ex-Burma): Fistié; *Maori*: Richardson; *Mindanao* (Philippines): Wolff; *Ibos* (Nigeria): Aquarone; *South Sudan*: Aquarone.

Table A1: Minority group data

	Minority pop.	Percent. of total pop.	Percent. of minority language speakers	Spatial index of integr. <i>g</i>	Historical index 1845–1945 <i>h</i>	Death index 1945–1994 <i>d</i>
	million	%	%			
<i>I) Europe</i>						
Belgium, Flanders	5.7	64.0	90	0.34		–0.33
Belgium, French-speaking area	3.2	36.0	90	0.26		–0.33
Britain, Scotland	5.5	9.4	2	0.17	0.50	–1.00
Britain, Wales	2.7	4.9	25	0.52	1.30	0.42
Finland, Åland Island	0.02	0.4	95	0.60	1.2	–1.00
France, Alsace	1.30	2.8	30	0.50		–1.10
France, Basque Provinces	0.25	0.50	36	0.45	1.75	
France, Brittany	2.4	5.2	12	0.44		0.27
France, Corsica	0.27	0.6	10	0.19		3.05
France, Guadeloupe-Mart.	0.70	1.4		0.05		1.55
France, New Caledonia	0.05	0.1		–0.08		2.77
France, Occitania	3.4	7.3	1	0.87		–0.60
France, Tahiti	0.17	0.34		–0.07		1.25
Italy, South Tyrol	0.43	0.8	65	0.56		1.43
Spain, Andalusia	6.0	18		0.77		–0.78
Spain, Basque Provinces	2.0	3	35	0.72	4.19	2.80
Spain, Catalonia	5.7	13	70	0.62	3.34	0.24
Switzerland, Bernese Jura	0.8	1.3	80	0.52	1.5	0.42
<i>II) North and South America</i>						
Canada, Quebec	6	25	80	0.47		0.02
Mexico, Chiapas	2.5	4.3		0.50		2.55
Peru, South	6.0	25		0.71		2.56
U.S., Hawaiians	0.18	0.1			1.0	0.74
U.S., Alaska Inuit	0.03	0.01	82	0.32		
U.S., Navajos	0.17	0.10	74	1.0	2.6	1.0
U.S., Mexicans (AZ, NM)	1.2	0.55	40	0.78	2.4	0.52
U.S., Sioux	0.07	0.03	50	1.0	3.4	1.6
<i>III) Asia and Oceania</i>						
Australia, Aborigenes	0.14	1.0		0.66	3.3	2.59
India, Jammu&Kashmir	7.8	1.1		–0.30		3.42
India, Sikhs	14	1.9	80	0.88	5.1	3.11
Indonesia, East Timor	0.6	0.5		0.22		5.2
Indonesia, Aceh Province	3.0	1.8		0.40	5.2	3.27
Indonesia, South Moluccan	1.2	0.8		–0.63		>0.22
Myanna, Karens	3.0	10		0.23		3.1
New Zealand, Maori	0.4	12	15	0.75	3.0	0.83
Philippines, Mindanao&Jolo	0.70	3.0		0.46	2.9	1.8
Thailand, Moslem Malays	0.7	3.0		0.46		1.8
<i>IV) Africa</i>						
Cameroun, Bamiléké	0.5	17		0.46		2.5
Nigeria, Ibos	10	11		0.63		4.3
Sudan, South	6	25		0.39		4.9

The definition of the spatial and historical indexes are given in the text. The index *d* is defined as:  $d = \log(\text{number of deaths, 1945–1994} / \text{average minority population, in million})$ .

Sources: minority populations: table 1; historical index: see appendix; death index: newspaper data base of the National Foundation for Political Sciences, Paris.

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