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Squaring the Circle: The Geometry of Power-Sharing in the Swiss Canton of Berne

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ABSTRACT   In liberal democracies, the protection of territorial minorities can take various forms. This article presents and discusses the geometric mean as a peculiar mechanism used in the Swiss Canton of Bern to accommodate its francophone minority. The geometric mean combines corporate consociationalism with centripetal democracy in an innovative way, using both regional and total votes obtained by minority candidates to designate the one francophone member of the otherwise German-speaking seven-seat cantonal executive. After presenting the history and reasons for the emergence of this mechanism, we analyse six decades (1958–2018) of executive elections. This allows assessing the effect of this instrument introduced in 1993. Both this historical analysis as well as an assessment from a liberal-democratic perspective show that the geometric mean presents an almost ideal mix of minority accommodation and respect for the will of the majority in a simple, open-ended and liberal-democratic way.

Introduction

A central question in both democratic and ethnopolitical theory is how to protect ethnic minorities without sacrificing liberal democracy. In general, minorities can be accommodated in various ways: through territorial or non-territorial autonomy to run their own affairs (self-rule), or through representation and inclusion in central decision-making (power sharing) using consociational or centripetal mechanisms. Under consociational terms, pre-defined ethnic groups are included as such (thereby cementing ethnic identity markers), whereas centripetal rules encourage seeking electoral support across ethnic boundaries (thereby weakening them). The real-world model of minority accommodation we present and analyse in this article, the Swiss Canton of Berne, draws on all four strategies: regional autonomy for a linguistic minority over a territory where it constitutes a majority; non-territorial group rights and state-wide cultural recognition; consociational representation in central government; and also a—more or less—centripetal electoral rule. Particularly this last element, namely the use of the geometric mean to select the

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one minority member of the central (i.e. cantonal) government, is discussed prominently in this article. We do so for two reasons.

First, often the choice between centripetal vs. consociational accommodation is presented in the literature as a dichotomy, with advocates for either side trying to make a case for stability, justice and fairness (e.g. McCulloch, 2017). But while centripetalism is said to encourage moderation and non- or even cross-ethnic voting, it might cause deadlock and instability (e.g. McGarry & O'Leary, 2016). Consociationalism, in turn, takes ethnicity seriously but locks citizens into existing ethnic identity structures and can lead to centrifugalism (e.g. Horowitz, 2014). In our case here, one of seven executive seats is reserved for a member of the linguistic minority (consociationalism), but in determining its holder, minority and majority votes are pooled (centripetalism; cf. Bogaards, 2003). There is thus a *theoretical* interest in knowing whether an institutional solution that combines the two approaches retains the advantages of each or makes things even worse.

Second, as noted by many (e.g. McGarry, 2017), successful cases of centripetal minority accommodation are rare. Particularly if the minority is very small, neither proportionality nor the Alternative Vote alone will suffice to avoid being constantly overruled. Members of the majority, in turn, will want protection of *their* democratic rights. The case we present in this article seems to have solved that problem. The Canton of Berne's francophone minority is over-represented in central government, yet members of the germanophone majority participate in designating the holder of the guaranteed seat. To avoid being overruled, the candidate with the highest geometric mean is elected. The geometric mean is calculated on the basis of the absolute number of total (minority + majority) and minority votes. Introduced in 1993, we can compare several decades of prior voting with several decades afterwards. Looking at the history and operation of that particular mechanism is thus also of *empirical* interest.

So the title on the 'geometry' of power-sharing in the Swiss Canton of Berne is meant both metaphorically and literally. Metaphorically, because it designates a system of power-sharing that includes several features; literally, because we pay particular attention to the geometric mean. The next section summarises current power-sharing debates and establishes liberal-democratic benchmarks. The third section describes minority accommodation in the Canton of Berne. The fourth discusses the introduction and operation of the geometric mean, before we analyse all four mechanisms using liberal-democratic criteria. The final section concludes with a brief reflection on other cases.

Minority Protection in Liberal Democracies

Instruments

Territorially concentrated cultural minorities can be accommodated using different instruments. For the purpose of this article, we are agnostic about the validity and type of cultural distinction that lie at the root of a minority's auto-description and rule out secession, oppression, and annihilation as solutions (Lluch, 2014, p. 2; O'Leary, 2016, p. 345). We also assume liberal democracy, i.e. universal suffrage, the rule of law and non-discrimination, to be given and undisputed as such. Under these conditions, the literature has distinguished four basic mechanisms of minority protection. Figure 1 arranges them into a decision-making tree. All four infringe upon the unhampered democratic translation of the majority's
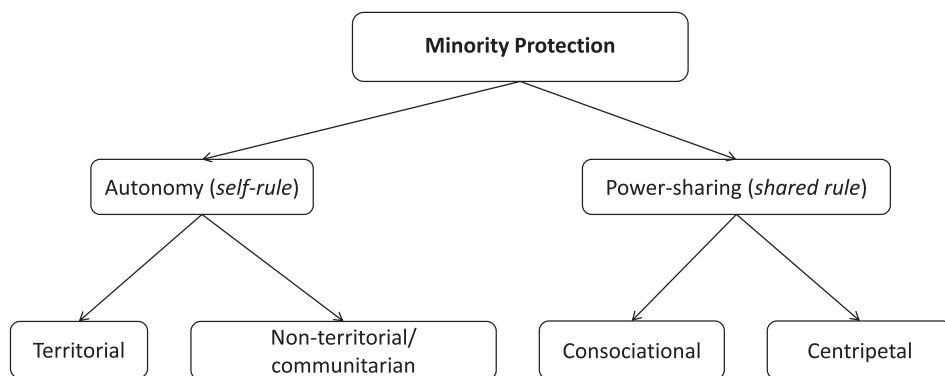
Figure 1. The four basic types of minority protection
Note: Only formal and political mechanisms of minority accommodation are listed (cf. McCulloch, 2017).

will into collective action, since that is precisely their purpose (e.g. Kymlicka, 1995): to provide cultural protection where liberal democracy by itself does not.

Although oftentimes the four instruments are used in combination, conceptually they are distinct. A first juncture defines whether minorities are given power over themselves (*self-rule*) or others, too (*shared rule*). Self-rule means autonomy to define their own rules, raise their own resources, spend as they wish, and/or implement political decisions free from outside interference. If that road is taken, apart from the precise scope of self-rule, a second decision concerns the basis of self-rule: territorial or non-territorial/communitarian? Shared rule, or power-sharing, refers to mechanisms through which a minority is represented at and thus included in central decision-making. This empowers minorities to co-decide matters of concern for the *whole* polity, including but not restricted to themselves (Hooghe et al., 2016; Mueller, 2014). The subsequent distinction in this branch is whether to rely on consociational or centripetal mechanisms. In the remainder of this subsection, we briefly discuss the main advantages and disadvantages of these four basic types of minority protection from the perspective of ethno-political theory. The next subsection develops liberal-democratic yardsticks.

(1) Territorial self-rule: Devolution of power is one obvious way to protect a minority, especially if the group is territorially concentrated (Coakley, 2016, p. 6). Territorial concentration means that most if not all minority members live in an area with existing political borders, for example German-speaking Italians in the province of South Tyrol/Alto-Adige or Corsicans in Corsica (e.g. Fazi, 2014). However, territorial self-rule only makes sense if a minority is a *majority* at the level to which self-rule is granted. Yet then new problems usually arise regarding the protection of minorities at *that* level (e.g. Italian-speaking Italians in South Tyrol/Alto-Adige). In addition, devolution to ethnic regions entrenches and legitimises the very divisions it was meant to appease and can encourage demands for further self-rule or even outright secession (Erk & Anderson, 2009).

(2) Communitarian self-rule: Giving minorities autonomy over certain affairs not through territory but directly, as communities, would seem to solve the problem of creating new

minorities. Hence, French-speaking Belgians have access to their distinct cultural and education policies regardless of whether they live in Brussels or Mons, as do Dutch-speakers in either Brussels or Antwerp. Although belonging of different groups, *both* are majoritarian (even hegemonic) at the *same* level of governance (cf. Coakley, 2016, p. 2; Dalle Mulle, 2016, p. 105). However, citizens are locked into their corporate identity (McCulloch, 2014) and there is no common ground for inter-action (Dalle Mulle, 2016, p. 115). Also, as with territorial autonomy, self-contained intra-ethnic debates might fuel demands for ever more self-rule and secession (Caluwaerts & Reuchamps, 2015, pp. 286–291.).

(3) Consociationalism: Turning to central power-sharing, consociationalism allows—or even mandates (Deschouwer & van Parijs, 2013, pp. 119–120)—ethnic minorities to participate in state-wide decisions *as groups*. Two elements in particular are thought to facilitate that outcome (Lijphart, 1977):[1] While proportionality ensures that groups are included according to their numerical strength, veto rights put them on parity despite differences in size. However, consociationalism leads to stalemate when elites cannot agree to form a common government, as in Belgium after the 2010 federal elections (Deschouwer & van Parijs, 2013, p. 112), or regularly block each other, as in Bosnia's three-member corporate presidency (Bochsler, 2012; cf. also Horowitz, 2014). The liberal variant of consociationalism, whereby groups are not pre-determined, avoids the problem of ethnic identity entrenchment and is more responsive to shifting voter support (McCulloch, 2014, p. 509). However, as in Northern Ireland after the 2017 regional elections, government formation still depends on the willingness of essentially antagonistic elites to cooperate, and there is no guarantee that ethnic outbidding will disappear. Also, the liberal variant of consociationalism is even less likely to be adopted than its corporate cousin (McCulloch, 2014, p. 511).

(4) Centripetalism: The other path through which minorities get to participate in decision-making at polity-wide level is through centripetal elections. Here, to be elected, minority leaders must also be supported by members of one or several *other* groups (Deschouwer & van Parijs, 2013, p. 127; Horowitz, 2014, p. 5; McCulloch, 2013, p. 94). The hope is that the necessity of such cross-ethnic support favours moderate candidates, especially if combined with plurality/majority elections (e.g. Bogaards, 2003, p. 76). Centripetalism thus encourages movement towards both the ideological and territorial centre. One example is the requirement for Nigerian presidents to win at least 25% of votes cast in at least two thirds of all constituencies (36 provinces plus the capital territory; Horowitz, 2014, p. 10; Arts. 3 and 134 of the Nigerian Constitution of, 1999). Another example is the federal electoral district proposed by the Belgian 'Pavia Group' (e.g. Deschouwer & van Parijs, 2013). However, there is no guarantee that a coalition of moderates is actually formed, that it is sustainable once formed, or even that minority representation and cross-voting actually occur (McCulloch, 2013, pp. 95–104; McGarry, 2017, p. 277).

In sum, none of these four mechanisms is free of potential negative consequences from an ethno-political perspective. Most tend to entrench ethnic identity and encourage demands for further autonomy. And while liberal consociationalism and centripetalism avoid these problems, if cultural minorities are not protected as pre-defined groups anymore and if representation is not guaranteed, feelings of political insecurity and cultural endangerment can arise. A further challenge to minority accommodation lies with liberal

democracy itself. In all four types of power-sharing, dissatisfaction might also arise on the side of the majority, since this group would profit the most from the absence of any such guarantees (Horowitz, 2014, pp. 14–15). In view of these concerns, what qualities should a perfect instrument have? This question is addressed in the next section. Based on a normative liberal understanding of democracy, we develop three benchmarks against which minority accommodation in the Canton of Berne will later be assessed.

Democracy

Multicultural democracies do not cease to be democracies just because they are multicultural. All four instruments of minority protection presented above stay within the bounds of liberal democracy by relying on the rule of law, free, fair and regular elections, and basic guarantees for fundamental rights (e.g. Kymlicka, 1995). More generally, democracies attempt to maximise two basic principles: equality and freedom (e.g. Bühlmann, Merkel, Müller, & Weßels, 2012). These two are in a permanent state of tension, because increasing the one necessarily decreases the other (Unger, 2008, p. 261).

Equality denotes the most basic idea of liberal democracy: one citizen, one vote.[2] *Maximising equality* would mean that all democratic decisions are taken by simple majority. This is what liberal or realist models of democracy opt for (e.g. Sartori, 1987; Schumpeter, 1950). However, the maximisation of equality can result in a 'tyranny of the majority' (de Tocqueville, 1997 [1835]), since placing the majority's interests above those of the minority curtails the freedom of the latter. Hence, to protect the minority from the tyranny of the majority, one could *maximise freedom*. Again, to keep things simple we define freedom as sovereignty over oneself, including the possibility to assert one's opinion (e. g. Mill, 1998 [1859]). It rapidly becomes clear that the full maximisation of freedom degenerates into anarchy.

In order to find and retain a dynamic balance between freedom and equality, a third principle of democracy is therefore needed: control. Understood as a 'network of institutions that mutually constrain one another' (Bühlmann et al., 2012, p. 4), control helps to define the point (or better still: the range) of intersection of freedom and equality. It does so by defining the rules of their specific interplay and thus contributing to legal certainty, transparency, and stability. Ideally, such institutions are more or less open frames that allow for adjustment and political learning (Mayntz & Scharpf, 1995). Furthermore, as there is no non-normative reason for justifying decisions as such (Dahl, 1998), institutions must not target the output of a decision, but rather its procedure. This alone guarantees that no decision is seen as an incontrovertible truth by either the majority or the minority, but rather as an only temporary solution that can be re-scrutinized any time (Bühlmann, 2015a, 2015b).

An ideal instrument for liberal-democratic minority protection, thus, must meet the following three criteria:

(1) *Protection of the freedom of the minority:* in order to preserve the freedom of the minority, the decisions of the majority must take into account the minority opinion;
(2) *Weight of equality of majority:* To avoid a tyranny of the minority, the freedom of the minority must not come at the expense of the equality of the majority or of society as a whole. In other words: the freedom of the minority must not excessively devalue the equality idea of 'one citizen, one vote'; and

(3) *Procedure orientation:* To allow for adjustments and political learning in a complex and evolving society and to encourage solidarity and common ground between different cultural groups, institutions must target procedures rather than outcomes.

When evaluating minority protection in the Canton of Berne and the geometric mean in particular (see below), we will use these three criteria as benchmarks.

Minority Protection in the Canton of Berne

Context

The Canton of Berne is one of 26 constituent units of the Swiss federation (see Figure A1, Annex). At the end of 2015, it had a total population of roughly 1 million (BFS, 2017). The last year for which actual census data on the number of residents by mother tongue is available is 2000. As can be seen from Figure 2, Francophones constitute 8% of the total (BFS, 2012). By comparison, the total population of Switzerland in 2015 was 8.3 million, of which 64% spoke German, 23% French, 8% Italian and 1% Romansh (BFS, 2017). In other words, French-speakers living in the Canton of Berne are a double minority: nationally as well as cantonally.[3]

Their minority position only changes once we move to the regional level where they are concentrated. In 2000, 58% of all Bernese French-speakers lived in the *Jura Bernois* region (JB for short). JB accounts for only 5% of the total cantonal population, but Francophones constitute an 86%-majority here (Figure 2). A further 25% of Francophones live in the adjacent bilingual district of Biel/Bienne (home to 9% of the cantonal population), where they however remain a minority. The remaining 17% of French-speakers are scattered over the
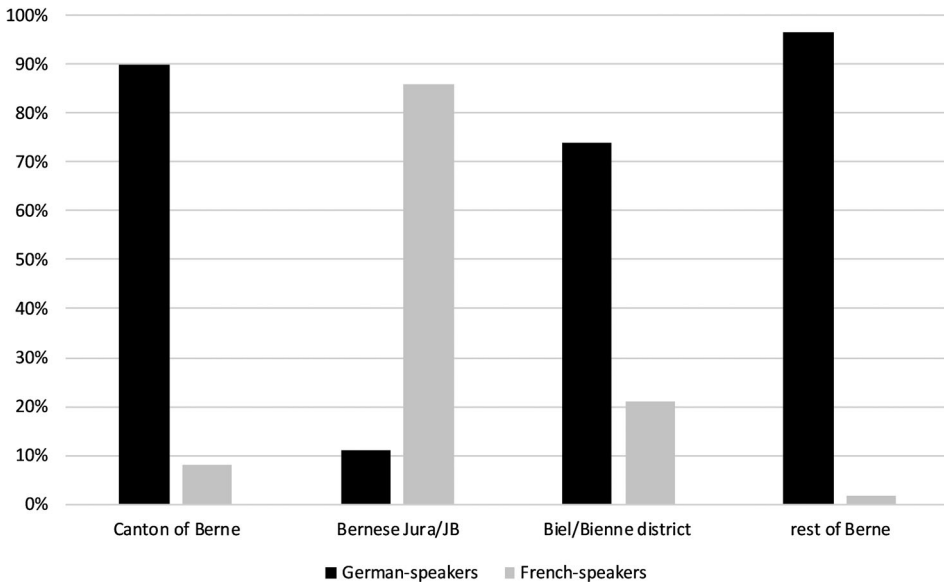

Figure 2. Linguistic composition of the Canton of Berne and its parts
Source: Own calculations based on BFS (2012). Other languages and religions not shown.

rest of the cantonal territory (BFS, 2012). However, Francophones in the rest of Berne amount to only 2% (Figure 2) and probably include many foreign citizens as well as immigrants from other French-speaking cantons, since Berne city is the national capital and home to a large public sector. Our main concern in this section, therefore, is with the Bernese Jura and Francophones living there or in the adjacent bilingual district of Biel/Bienne.

Minority Protection

The Bernese Jura and Biel/Bienne were both part of the territorial enlargement that Berne achieved at the 1815 Vienna Congress, when the Prince-Bishopric of Basel was dissolved and included into the Swiss Confederation (Art.s 76–77; cit. in Klüber, 1816). However, the predominantly French-speaking and historically catholic area always sat uneasily within the German-speaking and largely protestant Bernese polity. Thus, in 1978/9 the northern three districts separated from Berne to form the new Canton of Jura (Siroky, Mueller, & Hechter, 2017), and in 1993 the Laufental joined the Canton of Basel-Countryside (e.g. Junker, 1996, pp. 117–118). The secession of the North was the result of a long political struggle that had started shortly after World War II. To appease the francophone minority of that time, the Bernese constitution was reformed in 1950 to recognise the 'Jurassian people' and guarantee it two seats in the nine-member cantonal executive (Canton of Berne, 1950, pp. 136–137). Nevertheless, in a cascade of popular votes at cantonal, regional, district and local levels (1970–1975), a majority in the northern three districts voted to leave, whereas a majority in the southern three districts remained in what henceforth was known as the 'Bernese Jura' (Figure A1). After the secession of the North, the Bernese constitution was amended anew: the notion of the Jurassian people was erased and the number of guaranteed seats reduced to one out of nine, until 1990 (Canton of Berne, 1978, pp. 56–57), and one out of seven, since then. The instruments of minority protection presented next thus refer to the post-1979 period, using the fourfold typology elaborated above.

(1) Territorial self-rule: There are two layers of territorial autonomy within the Canton of Berne, one local and the other regional, one symmetrical and the other asymmetrical. Locally, all municipalities possess a certain degree of local autonomy (Mueller, 2015), regardless of their size, location or linguistic composition. Since 1999, even the Federal Constitution explicitly acknowledges this (Art. 50.1). Local autonomy includes the power to tax, issue construction permits, licensing, culture, sports and parts of social welfare (Ladner, Keuffer, & Baldersheim, 2016). As of 2017, Jura Bernois had 40 municipalities, the whole Canton of Berne 352 (BFS, 2017). Regionally, however, only *Jura Bernois* has its own regional council (*Conseil du Jura Bernois/CJB*, since 2006), whose 24 members are popularly elected every four years. It has the power to (a) grant cultural, sports and other subsidies; (b) coordinate with francophone cantons in educational, linguistic and cultural matters; and to (c) propose a range of candidates for certain administrative posts (Arts. 3, 15, 19, 23 and 27 of the Sonderstatutsgesetz, 2004). No other region of Berne possesses such a council.

(2) Communitarian self-rule: For Francophones living in the bilingual city of Biel/Bienne and the neighbouring Évilard/Leubringen municipality, there is the *Conseil des affaires francophones du district bilingue de Bienne* (CAF, since 2006) (Art. 2 of the Sonderstatutsgesetz, 2004). The CAF has 15 members, of which at least 10 must be French-

speaking as defined by the electoral registry. Similarly to the CJB, the CAF can coordinate with francophone cantons in educational matters and is involved in decisions on cultural and other subsidies as well as certain administrative appointments (ibid. Arts. 34, 45 and 46). In June 2017, the cantonal government decided to temporarily extend to scope of the CAF to include Francophones of all 19 municipalities of the district of Biel/Bienne and increase total membership to 18 councillors (Canton of Berne, 2017).

(3) <u>Consociationalism</u>: The Canton of Berne is officially bi-lingual, with German and French being pre-determined as state languages (Art. 6 Constitution of Berne of 1993). Francophones have guaranteed representation in both the cantonal parliament and government. Parliament is elected using proportionality and nine constituencies. Two types of quotas exist: First, the Bernese Jura forms its own electoral district and is guaranteed 12 seats (ibid. Arts. 72 and 73). However, neither the constitution nor the enacting legislation specifies that MPs elected there must be francophone. In that sense the mechanism is liberal, not corporate. Second, the constitution prescribes that also the francophone minority in Biel/Bienne must be 'adequately represented' (ibid. Art. 73.3). Here, the law (PRG, 2012) specifies that 'the French-speaking population of the district of *Biel/Seeland* is guaranteed as many parliamentary seats as corresponds to its proportion of the total population in that constituency.' (Art. 64.3, own translation). No other Swiss canton knows formal and explicit quotas of this kind (Keech, 1972; Stojanović, 2008, pp. 243–245). Note that 'constituency' (Biel/Seeland) and 'district' (Biel/Bienne) do not overlap, as the former contains the latter. In turn, it is explicitly prescribed that MPs are francophone (PRG, 2012, Arts. 88–89), making this a corporate instrument.

Apart from proportionality, also the second of Lijphart's remedies—veto rights—is somewhat present. Once elected, the 12 MPs from the Bernese Jura and all French-speaking MPs from Biel/Bienne (currently 3) together constitute the so-called *députation* (Art. 31 Grossratsgesetz, 2013). On matters of particular concern to either the Bernese Jura or the French-speaking population of Biel/Bienne, that group can call for a second reading (ibid. Art. 31.3). More specifically, at least 3 MPs from the *députation* must demand that the votes of its members be counted separately from those of other MPs, and if there are disagreeing (simple) majorities, the business is referred back to the government, which must seek a mutually acceptable solution ('alarm bell'; cf. also Bodson & Loizides, 2017). However, in the second reading a simple majority suffices (Art.s 53–54 Geschäftsordnung, 2013).

The cantonal government has been directly elected since 1906 (Junker, 1996, p. 32). Since 1846 consisting of 9 members (Junker, 1990, 83), its size was reduced to 7 in 1989 (Canton of Berne, 1989, pp. 371–372). Each member must have won an absolute majority in the same single, canton-wide electoral district, with citizens having as many votes as there are seats. A second round, when a plurality of votes suffices, is foreseen for seats not filled using the majority criterion (Art. 85 Constitution of Berne of 1993). Again, there is a corporate-consociational, formal and explicit quota: One of the seven executive seats must be occupied by a francophone citizen who at the same time resides in the Bernese Jura (ibid. Art. 84.2). The result of all this is a slight over-representation of the Bernese Jura and Francophones—but not the Francophones of Biel/Bienne—in parliament and even more so in government (Table 1).

Table 1.   Size and representation of the Bernese Jura and Francophones in Berne, 2017

Entity/Community	% cantonal population	% parliamentary seats (N/total)	% government seats (N/total)
Bernese Jura	5%	7.5% (12/160)	14% (1/7)
Francophones in Biel/ Bienne	2%	1.9% (3/160)	0% (0/7)
Francophones of Canton Berne	*8%*	*9.4% (15/160)*	*14% (1/7)*

Source: Own calculations based on BFS (2017).

(4) <u>Centripetalism:</u> The fourth and final type of minority protection, centripetal vote pooling, is present in the form of a—to our knowledge—unique rule applied for executive elections: the geometric mean. It is spelled out in Art. 85.4 of the Constitution of Berne and works as follows:

$$GM = \sqrt{votes_{JB} * votes_{BE}}$$

where $votes_{JB}$ = the number of votes won in the Bernese Jura and $votes_{BE}$ = the number of votes won across the entire canton of Berne (including Bernese Jura). Only francophone candidates residing in the Bernese Jura qualify. The person with the highest geometric mean (GM) is elected, provided s/he has also passed, in the first round, the absolute majority threshold (which is determined by cantonal votes only; ibid.). This rule is centripetal because it incentivises candidates of the French-speaking minority to seek electoral support also among the German-speaking majority. Because of multiplication, it also pays off more to have the support of German-speakers living in JB than of French-speakers living in the rest of Berne. However, the fact that the rule is used only for choosing the one corporately guaranteed member out of totally seven is clearly a consociational trait. Moreover, since only francophone candidates residing in a specific, almost exclusively francophone region qualify, communitarian and territorial elements are combined. Has this rule thus been able to square the circle and provide for the best of all worlds? How does it perform against the other three instruments? To answer this, the next section looks at the history and operation of this mechanism before we apply our democratic benchmarks.

The Geometric Mean: Origin and Operation

Political Origins: Government Elections 1958–1990

Table 2 list all francophone candidates for the Bernese government and their results between 1958 and 1990, that is before the geometric mean was introduced. Between 1958 and 1966, the most popular candidate in the Bernese Jura was not also the most preferred francophone candidate canton-wide. Nevertheless, until 1979 JB was still joined up with the three northern districts, and together they were entitled to two seats in total. Between 1970 and 1982, that is both before and after the North had seceded, regional and canton-wide rankings coincided, so no discussion about a possible discrimination emerged and using the geometric mean (introduced in 1993) would have made no

Table 2. Election of francophone members of government in Berne, 1958–1990 [absolute number of votes]

Year (round)	Candidate	Votes$_{JB}$	Votes$_{BE}$	GM	Note
1958	**H. Huber**	**4'438**	**63'036**	**16'726**	1st in JB, 2nd overall + GM
	V. Moine	**3'867**	**78'955**	**17'473**	2nd in JB, 1st overall + GM
1962	**H. Huber**	**3'940**	**57'771**	**15'087**	1st in JB, 2nd overall + GM
	V. Moine	**3'175**	**77'958**	**15'733**	2nd in JB, 1st overall + GM
1966	**H. Huber**	**5'556**	**57'158**	**17'820**	1st in JB, 2nd overall + GM
	S. Kohler	**4'646**	**80'709**	**19'364**	2nd in JB, 1st overall + GM
1970	**H. Huber**	**4'952**	**56'650**	**16'749**	2nd everywhere
	S. Kohler	**5'398**	**81'982**	**21'037**	1st everywhere
1974	**H. Huber**	**9'713**	**98'771**	**30'974**	2nd everywhere
	S. Kohler	**10'242**	**147'442**	**38'860**	1st everywhere
1978	**HL Favre**	**13'376**	**126'937**	**41'206**	1st everywhere
	H. Sommer	**10'996**	**78'336**	**29'349**	2nd everywhere
1982[a]	**HL Favre**	**12'968**	**134'673**	**41'790**	1st everywhere
	H. Sommer	**11'562**	**83'696**	**31'108**	2nd everywhere
	JC Crevoisier	5'377	10'052	7'352	3rd everywhere
1986 (1st)	G. Aubry	6'736	59'369	19'998	1st everywhere, but no absolute majority
	B. Hofstetter	1'941	40'130	8'826	2nd everywhere
1986 (2nd)	G. Aubry	7'339	60'391	21'053	1st in JB, 2nd overall— would have won with GM
	B. Hofstetter	**3'813**	**69'054**	**16'227**	2nd in JB, 1st overall— would have lost with GM
1990[b]	**M. Annoni**	**7'291**	**117'410**	**29'258**	1st everywhere
	B. Hofstetter	6'025	110'430	25'794	2nd everywhere

[a]Henceforth without the regions of the new canton Jura and number of guaranteed seats reduced from two to one.
[b]Number of total government seats reduced from nine to seven in 1989.
Note: JB = Bernese Jura (calculated backwards for 1958–1978), GM = geometric mean (introduced in 1993).
Elected candidates in bold. Female right to vote introduced in 1971.
Source: Own compilation based on official voting records

difference. Once the Canton of Jura was formed, the number of guaranteed seats for JB was reduced from two to one in 1978—nevertheless, there were still two representatives elected in 1982. In 1984, a German-speaking candidate replaced the deceased H. Sommer in a by-election and JB's representation was reduced to the one guaranteed seat. This already led to first debates about a possible under-representation (APS, 1985, p. 36). But while losing an extra seat is one thing, seeing the holder of its guaranteed minority seat being chosen by the majority is a different matter entirely.

Politically, then, the origins of the geometric mean lie in the 1986 government elections. That year, the overall winner of the first round and the regionally most popular G. Aubry was defeated in the second round because she lacked sufficient support outside the Bernese Jura. Instead, the regionally much less popular B. Hofstetter was elected because of more votes overall (Table 2). For the francophone political elite, the conclusion was obvious: the German-speaking part had imposed its own candidate as the representative of JB.

Note that the Bernese party system is not structured along linguistic but rather ideological lines. All three major parties—Socialists (PS), Liberals (PLR) and Conservatives (UDC)—compete across the entire canton. Even the separate Socialist party present only in the

Bernese Jura, the secessionist *Parti socialiste autonome du Sud du Jura* (PSA), is defined by its ideological goal, unification with the Canton of Jura, and not language or culture as such. The 1986 election is instructive also from the ideological point of view: Aubry was known as a staunch loyalist and anti-separatist, i.e. a hardliner on the side of those who campaigned against the South joining the North in separating from Berne. By contrast, the eventually winning B. Hofstetter was a moderate on this territorial cleavage (cf. also Stojanović, 2011, p. 329). While this is precisely what centripetalism advocates, this outcome came about without vote pooling. In fact, had the geometric mean been applied already in 1986, the hardline G. Aubry would have easily won (Table 2).

Legal Origins: the Constitutional Revision of 1993

Immediately after the 1986 elections, the Bernese government was petitioned to propose a new electoral rule for determining the holder of the one seat guaranteed to JB (Staatskanzlei, 1988, p. 2). The question, simply put (ibid. 6), was this: How to give the regional electorate of JB more weight without, however, ignoring the will of the canton-wide majority? In 1987, the government received a proposal by two mathematicians (Carnal & Ory, 1987), subsequently vetted by a legal consultant (Aubert, 1988). The mathematicians proposed a *score pondéré* ('weighted result'), obtained by multiplying the vote share in JB with that in Berne overall (Carnal & Ory, 1987, p. 6). They highlighted three main advantages: a) equal weight given to the canton-wide and regional majorities; b) avoiding the election of a person not very popular with either of the two electorates; and c) simplicity (ibid. 6–7). Aubert (1988, pp. 31–35), one of Switzerland's foremost constitutional lawyers, also thought the *score pondéré* would satisfy both the criterion of democratic legitimacy and minority influence at the same time while being relatively easy to understand.

   Although equally favoured by most political parties and actors in JB when asked for their opinion in 1989, it took another four years before the rule was adopted. For in parallel to said events, the cantonal constitution (of 1893) was fully revised, and the government referred the task to find a new electoral rule back to parliament. Nevertheless, by 1990 the parliamentary committee tasked with preparing the new constitution decided the geometric mean was 'too complicated' and 'untried', although admitting it offered an 'optimal balance' between JB and the whole canton (Ausschuss C, protocol of 15.2.1990). Yet its proposal to retain the status quo was met with fierce opposition by actors from JB. The Federation of Communes from the Bernese Jura, for example, wrote that

> *Dès lors que l'on accepte de garantir au Jura bernois un siège au gouvernement, on doit aussi prévoir un mode d'élection permettant d'assurer l'élection comme « représentant du Jura bernois » d'une personne qui jouit effectivement de la confiance de ce dernier. […] Étant donné que « l'incident de parcours » de 1986 peut se reproduire à tout moment […] nous demandons que le système du « score pondéré » soit retenu pour l'élection du « représentant du Jura bernois » (Letter of 22.6.1990, p. 3)[4]*

The opposition by stakeholders, notably from JB, had its desired effect: In April 1991, the (now renamed) geometric mean was included into the parliamentary committee's draft constitution, where it survived the public consultation and made it into the final draft, subsequently passing two parliamentary readings (Grossratsprotokolle of May, June and

November 1992). The people of Berne approved the new cantonal constitution, including the geometric mean, in June 1993 with 78% in favour.

Operation: Government Elections 1994–2018

Table 3 list all government elections since 1994 that have applied the geometric mean. It reveals several interesting facts. Firstly, in seven out of nine elections, the rank-order of candidates is the exact same in JB and overall, so the geometric mean was not used and had no impact. The two exceptions are 2006 and 2014.

Table 3. Election of francophone members of government in Berne, 1994–2018 [absolute number of votes]

Year (round)	Candidate (party)	Votes$_{JB}$	Votes$_{BE}$	GM	Note
1994	**M. Annoni (PLR)**	**7'986**	**124'493**	**31'531**	1st everywhere
1998	**M. Annoni (PLR)**	**6'816**	**118'439**	**28'413**	1st everywhere
2002	**M. Annoni (PLR)**	**5'604**	**87'996**	**22'207**	1st everywhere
	C. Bornoz-Flück (PS)	4'296	68'867	17'200	2nd everywhere
2006	**P. Perrenoud (PS)**	**3'672**	**79'251**	**17'059**	2nd in JB, 1st overall + GM
	A. Vaucher (UDC)	3'324	75'244	15'815	3rd in JB, 2nd overall + GM
	M. Zuber (PSA)	4'900	5'980	5'413	1st in JB, 3rd overall + GM
2010	**P. Perrenoud (PS)**	**5'169**	**90'774**	**21'661**	1st everywhere
	A. Sylvain (PLR)	3'890	55'555	14'701	2nd everywhere
	M. Zuber (PSA)	3'590	11'102	6'313	3rd everywhere
2014	M. Bühler (UDC)	4'919	94'957	21'612	2nd in JB, 1st overall—would have won without GM
	P. Perrenoud (PS)	**5'889**	**86'468**	**22'566**	1st in JB, 2nd overall—would have lost without GM
2016 (1st)	**PA Schnegg (UDC)**	**8'627**	**154'217**	**36'475**	1st everywhere
	R. Bernasconi (PS)	7'919	152'081	34'703	2nd everywhere
	P. Gsteiger (PEV)	2'865	43'192	11'124	3rd everywhere
2016 (2nd)	**PA Schnegg (UDC)**	**7'003**	**111'657**	**27'963**	1st everywhere
	R. Bernasconi (PS)	5'270	107'755	23'830	2nd everywhere
2018	**PA Schnegg (UDC)**	**5'572**	**97'051**	**23'254**	1st everywhere
	C. Gagnebin (PS)	3'684	75'785	16'709	2nd everywhere
	M. Riesen (PSA)	3'430	26'002	9'444	3rd in JB, overall and with GM

Note: JB = Bernese Jura, GM = geometric mean. Elected candidates in bold, 2016 = by-election.
Source: Own compilation based on official voting records.

In 2006, the most popular candidate in JB, the separatist M. Zuber (PSA), was unable to gather sufficient votes in the rest of the canton. His regional lead of over 1'200 votes evaporated even when combined geometrically with a canton-wide shortfall of some 70'000 votes. Only a regional election *tout court*, i.e. ignoring the rest of Berne altogether as consociationalists would suggest, would have seen him triumph. The 2006 election also shows that not even the geometric mean is able obstruct the will of a simple, canton-wide majority against a really only regionally popular candidate. That a moderate candidate won at the expense of a radical due to vote pooling is in line with centripetal theory (cf. also Bogaards, 2003).

By contrast, in 2014 P. Perrenoud won *only* thanks to the geometric mean, i.e. because he was sufficiently more popular in the Bernese Jura than his direct rival. His regional lead of 970 votes was enough to tip the final balance in his favour, although he was *defeated* by some 8'500 votes overall. Hence, with enough regional support, even a simple, canton-wide majority can be overruled thanks to the geometric mean. At the same time—and this is valid for all elections—both majority and minority electorates continue to have a democratic say in choosing the person. Of course, the geometric mean deviates from the basic idea of equality ('one citizen, one vote') by counting the votes of JB citizens 'twice', i.e. both separately and as part of the whole. This turns them into some sort of super-voters.[5]

In sum, the geometric mean was introduced because members of the cultural minority felt the majority had chosen its central government member against their will, in 1986. The majority conceded that given the stark differences in size, an alternative to simple vote addition was necessary. However, across nine elections over 24 years (1994–2018), the geometric mean only once overruled a simple, overall majority. Ironically, while the root cause of the minority's dissatisfaction concerned the election of a progressive at the expense of a centrist, the one-time application of the geometric again saw the election of a progressive. This shows that the geometric mean not only favours moderates, but also that it is colour-blind in terms of party politics.

Democratic Evaluation

The final step in our analysis consists in applying our democratic criteria to all four types of minority accommodation practised in Berne (Table 4). Our comparison firstly suggests the superiority of power-sharing over autonomy. This is foremost due to the fact that autonomy comes at the cost of the—total or almost total—exclusion of the majority. While self-rule maximises the freedom to the minority, it hinders the whole society to find common grounds. In the worst case, the minority is locked into its corporate identity (McCulloch, 2014), and in their separate domains neither the majority nor the minority feel committed to considering the concerns of the other group.

By contrast, the combination of minority protection and equal weight of the majority appears to work better with power-sharing rules. As for consociationalism, minorities are given the chance (through quotas) to voice their opinions and negotiate (*députation*). However, in a purely mathematical sense, one could criticize the over-representation of JB: the weight of equality of the majority is somewhat too light. Furthermore, given the fact that the *députation* only has one chance to renew negotiations through a merely suspensive veto, procedure orientation is only partly fulfilled for Bernese consociationalism.

Table 4. Evaluation of minority protection in the Canton of Berne

	Condition		
Type of minority protection	*Protection of freedom of minority*	*Weight of equality of majority*	*Procedure orientation*
Territorial self-rule *Conseil du Jura Bernois*	(√) Only for restricted issues	⊗ Majority = local minority & overruled in devolved issues	⊗ Exclusion of majority impedes negotiation
Communitarian self-rule *Conseil des affaires francophones du district bilingue de Bienne*	(√) Only for restricted issues	⊗ Majority excluded from devolved issues	⊗ Exclusion of majority impedes negotiation
Consociationalism *Quotas / Députation*	√	(√) Overrepresentation of Bernese Jura	(√) only veto in first reading
Centripetalism *Geometric mean*	(√) elections only	√	√

Note: √ = fulfilled; (√) = partly fulfilled; ⊗ = not fulfilled.

Finally, looking at centripetalism, i.e. the geometric mean, we consider conditions one (partly), two and three fulfilled. The freedom of the minority is protected because only its own members qualify. And when the wills of majority and minority coincide, the geometric mean does not stand in the way of a simple, democratic victory. But what happens when these wills diverge? While the majority's weight is not perfectly equal to that of the minority, it can nevertheless be decisive and overrule an only regionally popular minority member (e.g. M. Zuber in 2006). In turn, even an overall majority cannot impede a regionally preferred minority member (e.g. P. Perronoud in 2014). The key is the support by at least some members of the majority, which is exactly what centripetal theory demands.

What makes the geometric mean so interesting—and ultimately superior to all other institutions discussed here—is that it all depends on exact numbers. Hence, when elections as the *prevention* of candidates are seen as important, the mobilisation of the majority can be decisive. The same holds true for the minority, but with opposite signs: when the *promotion* of a given minority-candidate is considered important, mobilisation and unanimity can help produce a victory for the minority in spite of being at a numerical disadvantage. This possibility of shifting victories qualifies the geometric mean as procedural institution. Sure enough, we cannot really speak of ongoing negotiations, but the possibility of adapting to changing situations depending on candidates at least helps to avoid unilateral and forever final decisions. It also creates a truly common result, since two vote tallies are multiplied.

There remains one small bitter pill, however: In the Canton of Berne, the geometric mean applies only to governmental elections, and even there only to one seat out of seven, and not to referendums and political decisions more broadly. Of course, most democratic systems are representative democracies. Elections are normally the main institutions of control. In other words: the combination of an institution protecting minority freedom without obstructing the equality of the majority and allowing for procedural orientation with an

institution of horizontal control of responsiveness and accountability seems indeed to be the 'egg-laying, milk-bearing woolly sow'. However, given the fact that in Switzerland as well as in the Canton of Berne, important political decisions are taken within the framework of direct democracy procedures, one could argue that the geometric mean should also be introduced for popular votes. Especially so since direct democracy is even better suited for procedural decision-finding and negotiation (e.g. Bühlmann, 2015a, 2015b). But that is an entirely different debate.

Concluding Discussion

This article has presented, discussed and evaluated different forms of minority protection as instituted in the Swiss Canton of Berne regarding its francophone minority. The most peculiar institution is the geometric mean, used as an electoral rule to designate the one minority member of the seven-seat collegial government. In our analysis of government elections between 1954 and 2018, we have found one case before that rule's introduction in 1993 where it would have changed the outcome in favour of the minority's preferences, and one case afterwards where its actual application overruled the will of a simple, overall majority. Between allowing the minority to autonomously designate its member, on the one hand, and being constantly overruled by the majority on numerical grounds, on the other, the geometric mean presents a compromise that maximises all three conditions elaborated in the second part of the article: it protects the freedom of the minority, respects the will of the majority, and permits dialogue and negotiations between the two. Neither territorial or communitarian self-rule, nor consociational mechanisms as applied in Berne score that highly. Even the losers of its one-time application in 2014 have not questioned the geometric mean (APS, 2015, p. 135).

What about other cases where this mechanism could be applied? As pointed out by McCulloch (2013), centripetalism works best where divisions are not too deep and the ratio of majority v. minority is not too extreme. While the geometric mean is designed precisely to deal with the latter type of situations (8% Francophones, most of them living in a region containing just 5% of the overall population), the case analysed here is certainly well within the former scope condition. That narrows the field of possibilities to liberal-democratic places such as Belgium (Stojanović, 2011), Northern Ireland, Canada, or Spain. However, parliamentary systems do not foresee the direct election of their heads of government and state, let alone individual cabinet members. But that does not exclude the direct election, using the geometric mean, of single-member offices such as an ombudsman or an election committee chairwoman. Among societies used to presidentialism, Sri Lanka or a united Cyprus spring to mind. Thinking about a president—or a three- or five-member presidency, as proposed by Bochsler (2012, pp. 76–79) for Bosnia—elected using the geometric mean opens up interesting avenues which to pursue in greater detail are however beyond the scope of this article.

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Notes

1. We purposefully disregard Lijphart's other two elements here: territorial autonomy is conceptually distinct from shared rule (cf. also Caluwaerts & Reuchamps, 2015, p. 280; Keil, 2015, p. 209), and whether and which types of (grand) coalitions materialise is an empirical, not a design-question (cf. McGarry & O'Leary, 2016, p. 492).
2. Of course, this idea is far too simple because the question of equality also contains a discussion about who exactly has the political right to decide. More social-democratic models of democracy (e.g. Meyer, 2009; Rawls, 2003; Sen & Nussbaum, 1993) would draw yet another picture. However, for our purposes here this simple, liberal idea of equality suffices.
3. In censuses from 2010 onwards, a combination of registry and survey techniques is used. Also, instead of their mother tongue, respondents can indicate more than one main language and 'unknowns' are recorded separately. Nevertheless, language proportions have remained broadly similar to those of Figure 2: 10% French-speakers in Berne overall, 86% in Jura Bernois and 31% in the Biel/Bienne district (BFS, 2017).
4. 'As soon as one accepts to guarantee the Jura Bernois a seat in the government, one must also provide an electoral mechanism that guarantees the election of a "representative of Jura Bernois" which actually enjoys its trust. […] Given that the "accident" of 1986 can happen again anytime, we demand that the "weighted score" is adopted for the election of "the representative of Jura Bernois"'. (own translation; letter retrieved from the Archives of Berne).
5. How much more precious an individual vote from JB is compared to one from the rest of the canton becomes clearest when there are diverging minorities, as was the case in 2014. To compensate the 970 votes advance that P. Perrenoud had over M. Bühler in the Bernese Jura, the latter would have needed to be ahead by at least 18'022 votes in the rest of Berne, i.e. he would have needed a minimum of 8'563 additional votes there (see Proof in the Annex). Different absolute numbers of votes in the two parts of the canton will lead to different results, of course.

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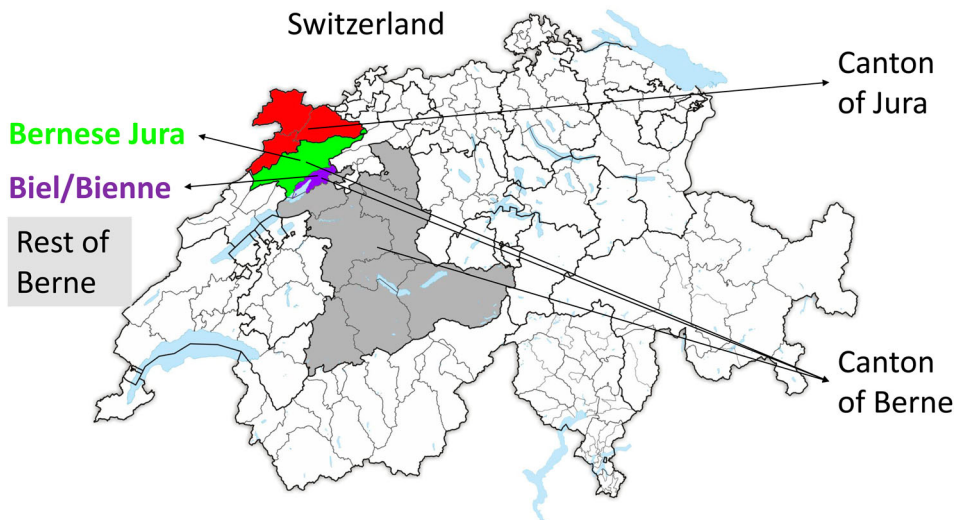
Annex

Figure A1. Map

Proof

In 2014, the electoral scores obtained were as follows (see also Table 3 above):

Year	Candidate	VotesJB	VotesBE	GM	Note
2014	M. Bühler (UDC)	4'919	94'957	21'612	2nd in JB, 1st overall— would have won without GM
	P. Perrenoud (PS)	**5'889**	86'468	**22'566**	1st in JB, 2nd overall— would have lost without GM
Advance M. Bühler		*−970*	*8'489*	*−953*	

The question we are asking now is how many votes Bühler was missing in the Rest of Berne (RoB) to compensate his defeat by 970 in the Bernese Jura (JB)? Let x denote the number of votes needed to attain *parity* with regards to the geometric mean (GM), calculated as the square root (sqrt) of the product of total votes (BE) and votes obtained in JB only:

$$GM_{Bühler} = GM_{Perrnoud} = sqrt(JB_{Bühler} * BE_{Bühler}) = sqrt(JB_{Perrnoud} * BE_{Perrnoud})$$

$$JB_{Bühler} * (JB_{Bühler} + RoB_{Bühler} + x) = JB_{Perrnoud} * BE_{Perrnoud}$$

$$4'919 * (4'919 + 90'038 + x) = 5'889 * 86'468$$

$$4'919 * (94'957 + x) = 5'889 * 86'468$$

$$467'093'483 + 4'919x = 509'210'052$$

$$4'919x = 42'116'569$$

$$x = 8'562.0185$$

Rounding x up to the next higher integer (as votes can only be cast in full), we get the number of votes Bühler would have needed *in addition* to his actual score in the Rest of Berne: 8'563. Assuming this had been the case, the calculations would have looked as follows:

Year	Candidate	VotesJB	VotesBE	GM	Note
2014	**M. Bühler (UDC)**	**4'919**	**94'957 + 8'563 = 103'520**	**22'565.8**	2nd in JB, 1st overall + GM
	P. Perrenoud (PS)	5'889	86'468	22'565.7	1st in JB, 2nd overall + GM
Advance M. Bühler		*−970*	*17'052*	*0.1*	

In other words, to compensate his defeat by 970 votes in JB, Bühler would have needed to defeat Perronoud by at least 18'022 in the Rest of Berne (17'052—−970 = (103'520—4'919) – (86'468—5'889)).