Party system Closure: Conceptualization, Operationalization and Validation

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Abstract

The predictability of party relations is a crucial dimension of party systems. The most recent innovation in the conceptualization and measurement of this dimension is due to Peter Mair (1996, 2001, 2007). This paper revisits the measures employed by Mair and his colleagues, points out the weaknesses of the existing operationalizations and suggests new indicators. The analysis of the psychometric characteristics of the new measures is done with the help of new data set that covers the first two decades of party politics in 29 democracies. The analysis shows that the role of government alternation is less relevant, while the role of governmental formulae is central in the construction of closure.

Keywords: party system institutionalization; structure of competition; closure; new democracies
Introduction

Party systems continue to be popular topics in political science publications but the last decades brought surprisingly few innovations as far as conceptualization and measurement is concerned. One of them is the concept of “closure” introduced and elaborated by Peter Mair (1996). The present study is primarily aimed at advancing party system analyses by improving the operationalization of closure. We suggest new indicators, which are both conceptually and empirically superior to the existing ones. The latter is demonstrated through the analysis of a new data set covering the first two decades of party politics in 29 democracies.

Mair’s concept of closure is related to the wider notions of stability, predictability, consolidation, structuring and institutionalization, but it refers specifically to a particular area of party politics: the interactions of parties in the governmental arena. Given that the seizure of governmental power is the principal (even if not the only) prize of party competition and given that this is the area where parties are often (although far from always) able to make autonomous decisions (that is, to join a particular government or not), the focus on this area assures that the conclusions will be both telling about the character of parties and consequential for the entire political system. The advantage of this approach is exactly what seems to be its weakness: it says very little about individual politicians and voters. Most operationalizations of party systems are based on voter-driven phenomena or on the behaviour of individual politicians (e.g. Mainwaring and Scully, 1995; Morlino, 1998; Kreuzer and Pettai, 2003). Closure, however, specifically reflects the choices of parties (with a governing potential) and therefore it allows scholars to investigate further how these choices affect voters and individual politicians.

The principal attractiveness of Mair’s model, however, lies in the fact that it links innovative, well defined indicators to a relevant, abstract concept: closure, and its inverse, openness. This does not mean, however, that the existing indicators are
necessarily the most fortunate ones. A re-examination and refinement of both conceptualization and measurement is necessary for a number of reasons. First, there are differences between Mair’s publications concerning the number of components and indicators. Second, the question of uni- or multi-dimensionality of the concept is not addressed. Third, there is a misfit between the original conceptualization and some of the employed indicators. Fourth, the existing operationalizations do not capture well the degree of predictability/change. Fifth, no proper measurement exists for one of the components of closure (formula) that could be applied to single governments. Sixth, the temporal dimension is not well reflected by the existing indicators. And seventh, the continuous indicators used in the literature are not built up in a symmetric fashion.

In the present article we suggest indicators of ‘party system closure’ which are 1. conceptually well justified, 2. uniform and transparent in their logic of construction, 3. allow the characterization of both individual governments and longer time periods, and 4. capture the degree of change.

Different ways to operationalize party system stability

The stability, institutionalization and predictability of party politics is considered as a crucial variable in a number of research traditions. But no consensus exists on questions related to operationalization of these concepts (Casal Bértoa, 2008). For example, the stability in the patterns of partisan competition is variously measured by Pedersen’s index of electoral volatility (e.g., Mainwaring and Scully, 1995), the “old” parties’ volatility (Meleshevich, 2007), party fractionalization (Bielasiak, 2002; Morlino, 1998; Tóka, 1997), or the number of “splits”, “mergers” and “name changes” (Welfling, 1973). Indexes reflecting party aggregation, the ideological distribution of political parties, the affiliation strategies of politicians and voters, or the difference in vote share between the two largest parties also often find their way into the list of fundamental indicators of party system institutionalization (Kreuzer and Pettai 2003,
Krupavicius 1999:24, Birch 2003:99-103). Most recently, Lewis has contributed to the literature with an Index of Party Stabilization (IPS), which involves the progressive enhancement of the proportion of the total vote for political parties in a given election over time (2006:574-575).

These operationalizations all tap important aspects of party politics but they are at odds with the most established definition of party systems, the one that emphasizes the crucial relevance of the patterns of inter-party competition (cf. Sartori 1976:43-44). The dominant role of Pedersen’s electoral volatility index is, while understandable, particularly problematic (Enyedi, 1998). This indicator mixes, on the one hand, supply and demand side, and, on the other hand, party- and systemic-levels (Kreuzer and Pettai, 2003; Wolinetz, 2006). More importantly, it says little about the logic of interactions. The same applies to party system concentration/fragmentation (or more simply, the number of parties), another often employed criterion. The low or constant number of parties is conducive to institutionalization, but it does not equal the latter (Wolinetz, 2006:57, Mair 2006:65). If four parties form two solid blocs the system is more predictable than when three parties alternate in power in various configurations. The fragmentation figures also tell us little about the continuity of parties and electoral alternatives.¹

**Mair’s model**

According to Mair (1997:206, 2001, 2007) party system institutionalization primarily depends on whether the interaction among political parties in successive periods of government formation become predictable and stable over time. In order to mark when a party system develops predictable and stable patterns of government formation, he proposes to analyse three different, although related, factors or criteria.

**Alternation in government**

¹ The number of parties contesting elections is of course important since it shapes the menu of electoral choices, the fragmentation of legislatures, the process of government-building, and in general the “streams of interaction” (Sjöblom, 1968:174). In Sartori’s words, “the greater the number of parties (that have a say), the greater the complexity and probably the intricacy of the [interactions will be]” (1976:120).
The first is alternation in government, or how completely the party composition of governing coalitions changes at each new instance of government formation. Mair sees here three conceivable patterns of alternation, namely: wholesale alternation, partial, and non-alternation. In the first case, the incumbent government leaves the office in its entirety, and is replaced by a wholly different party or group of parties. A second possibility takes place when the new cabinet contains both new parties and old ones from the previous government: that is, one or more parties remain in office while one or more parties leave, generally being replaced, but not always, by an alternative or alternatives (2007). The third option is marked by a complete absence of alternation, as the same party or parties remain in exclusive control of government over an extended period of time being displaced neither wholly nor partially.

**Innovation or familiarity of government alternatives (formula)**

The second component of the model is the presence of innovative or familiar governing formulae, and indicates the degree to which competing governing coalitions are composed of the same parties each time they regain power. That is to day, it considers whether there are stable groups of parties that tend to govern together (familiarity) or whether there is a systemic tendency towards previously unseen party compositions being represented in the executive (innovation).

**Access to government**

The final criterion Mair proposes to analyze is access to government, which considers the question of who governs, and refers to the extent to which all parties have the opportunity to participate in government over time. Thus, this third element is concerned with examining whether over a selected period of time all parties had a chance to enjoy the spoils of office or whether some parties were permanently excluded from participation in government.

Table 1. Party system stabilization: governmental arena

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Structure of competition</th>
</tr>
</thead>
</table>

9
<table>
<thead>
<tr>
<th></th>
<th>Closed</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government alternation</strong></td>
<td>Wholesale/None</td>
<td>Partial</td>
</tr>
<tr>
<td><strong>Governing formulae</strong></td>
<td>Familiar</td>
<td>Innovative</td>
</tr>
<tr>
<td><strong>Access to government</strong></td>
<td>Closed</td>
<td>Open</td>
</tr>
</tbody>
</table>

Source: Adapted from Mair (1996:95)

By assessing these three factors one can determine whether a party system is closed or open (table 1). Party systems are considered to be open when there are (1) partial alternations of governments, (2) there is no stable compositions of governing alternatives and (3) access to government has been granted to all relevant parties. It is closed when (1) alternations of governments are either total or none, (2) the governing alternatives are stable over a long period of time, and (3) some parties ("outsiders") are permanently excluded from participation in national government.

The number and weight of components and their relationships

Let us revisit first the number of components. The description above pointed to three: access, alternation and formula. In the original formulation Mair considers all three, and only these three, as components of closure. Mair 2007, however, is somewhat ambiguous in this regard. The analysis in that article was based not on three but on four variables (under the umbrella term patterns of alternation, which is confusingly similar to one of the components, alternation in government). The fourth indicator was the frequency of party composition changes, that is, how many times in a given period the governing formula changed. At the beginning of the analysis the four variables appear together as dimensions of closure. But later frequency and alternation are treated separately from formula and access. After discussing the first

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2 “I contend that by analysing changing patterns of government composition, including not only the pace and level of change, but also the degree of innovation in governing formulae, we can derive an overall measure of the extent of closure or openness in processes of government formation, and of the degree to which these processes are either more or less predictable or flexible” (Mair, 2007:???).
two Mair introduces the analysis of formula and access with the following words: “Thus far, my main concern has been with variation in the extent to which government provides a focus for competition, whether across countries or over time. But what is perhaps more relevant to the question of party systems is whether this competition proves to be open or closed” (2007:???). Finally, unlike in the previous publications, he leaves aside the examination of access and continuous to operationalize formula as the number/ratio of innovative governments (that is, governments containing new parties or new combination of old parties).

Most works relying on the original conceptualization use the three-component model. The frequency of government composition changes is not included in most analyses. An argument can be made that frequency is better left out from the operationalization of closure because it says more about the durability of the governments than about the relations among parties. Accordingly in our operationalization we will also stick to the tripartite model.

After considering the number of the components let us examine the relationships among them. All three components are related to one underlying, latent concept, closure, therefore one could expect a systematic relationship among them. There is no definitive comment in Mair’s work on whether these components form a scale, in other words whether they tap a unidimensional concept, or not. Since they are not consequences of closure but components of it, one should not expect them to necessarily align along one single dimension. Moreover, using the natural systems as analogies one could even argue that in order to maintain some sort of equilibrium party systems must avoid extreme values on these dimension which all go in one direction. For example, if new parties frequently join the government in a country then alternation in government could be expected to be often wholesale in order to restore some degree of predictability. If so then there could be a certain amount of trade-off between the three components, possibly manifesting in negative correlations.
There exist, however, certain mechanical relationships among the variables, and these relationships go against negative correlations. Both wholesale and partial alternation can coexist with familiar and innovative formulas (and in this sense they are independent from each other), but if one also includes no alternation as an option, that obviously can only go together with familiar formula. In the same way, open access is possible only with partial and total alternation. Finally, open access is possible only if the formula is innovative. (But not all innovative formulae involve new parties, since the novelty may derive from a new combination of previously incumbent actors as well.) To conclude, there is a bias towards positive relationships among the three variables. In case of alternation*formula and alternation*access this mechanical link applies to the specific case of ‘no alternation’.

One should expect positive correlations also because all three components are part of, and can be under the influence of, the larger syndrome of party system institutionalization. Enyedi and Casal Bétoa (forthcoming) on a sample of ten Eastern European democracies found that party systems with lower number of parties, stable and relevant party blocs, low electoral volatility and high level of polarization tend to have higher closure. The positive correlation among the three components may be a result of the impact of these external variables.

Finally, one should consider the weight of the individual components. While this is not stated explicitly, the three components are treated by Mair as if they were related symmetrically to the underlying latent phenomenon of closure, having the same relevance. We will check below whether this is empirically so. But considering the face value of the components, alternation appears as the weakest link in the chain. The appearance of new parties and the new coalition of parties stand for openness in an unequivocal way. But partial alternation has only an indirect link with predictability. If the incumbent parties have only limited options for partners, for example Christian Democrats can align only with Socialists or with Liberals, as in the classical Benelux patterns, then predictability is relatively high. Partial alternation
opens the way to change but, as opposed to innovative formulae and the inclusion of new parties into the government, does not equal change.

**Units of measurement**

Mair’s units of measurements are also problematic. He uses the three above presented variables to characterize governments, but defines governments as particular party configurations. If after an election the same coalition continues in government Mair has one entry in his data set, not two. In this way the data do not record instances of *no alternation*. But, as we have seen above, according to Mair’s original formulation no turnover must have the same status as complete turnover. A system should be considered to be closed whenever the existing government stays in power for a long time. This plausible logic is, however, not well reflected in the score of closure if one count the units as Mair does because cases of no alternation are non-existent by definition in the data-set. In our empirical analysis below we will include the first two decades of India. With Mair’s operationalization this would not be possible since in this period there were no changes in the government composition.

Traditionally, as summarised for example by Müller and Strøm (2000:12), the three criteria that are used to indicate a change of government or cabinet are: (1) a change in the partisan composition of the government coalition (i.e., when representatives of one or more parties leave the coalition government or join the coalition government); (2) a change in the prime ministership; and (3) new elections, even in cases when there was no change in the partisan composition of the cabinet.

As argued above, not considering elections that did not produce a change in party composition is problematic. Therefore both elections and party composition changes should matter in defining the unit of measurement. But what about PM changes? Here we agree with Mair that they should not be taken into account. PM changes which are not results of elections and are not accompanied by party-
composition-changes tend to concentrate in countries where the PM is less important (like France). The significance of the replacement of the PM typically does not reach the weight of a new election or the political relevance of a coalition break-up. Whenever there is a new election or when the governing coalition breaks down, the citizens and the political class are put in front of a dilemma: to continue with the old patterns or to invent something new. This happens so in some instances of PM resignations as well, but more often the challenge is managed by a small group of politicians within the dominant party: it does not put the system to a test like the other two mentioned events.

Finally, even if one agrees that elections and changes in party composition determine the fundamental units of measurement (for the sake of simplicity we can call these units ‘governments’), there are still dilemmas how to characterize longer time spans of particular countries. One option (see below) is to count the ratio of closed and open governments in the analyzed period, as done in the literature. But governments which survive for a few months are obviously less relevant than governments which rule for many years. Therefore some sort of weighting according to actual time is the better option.

To conclude this section, to define the units of measurement as particular party configurations is unfortunate because new elections give the possibility for reconfiguration, and therefore the continuity in these cases is noteworthy, and because in this way ‘no turnover’ cases do not get recorded although at the level of definition ‘no turnover’ is regarded as an instance of closure. The improved measures should also reflect better on the temporal dimension.

**Existing operationalizations**

*Dichotomous variables*
The model of Mair has inspired a growing number of scholars. Some of them used Mair’s original measures (e.g., Toole, 2000; Linz, 2001; Müller and Fallend, 2004; O’Dywer, 2004; Rybář, 2004), while others developed new, dichotomous or continuous variables. The original conceptualization suggested a dichotomous operationalization (e.g., Henjak, 2003; Stoychev, 2008): governmental formulae are either innovative or familiar, the governments either accept newcomers or not, alternation is either wholesale (i.e. total or none) or partial. In subsequent attempts of operationalization Müller-Rommel applied a score of 0 to no-alternation, innovation and access, 1 to wholesale alternation, familiar formula and closed access and 2 to partial alternation. Casal Bértoa (2008) and Enyedi and Casal Bértoa (forthcoming) relied on a simpler calculation, assigning 0 to partial alternation, innovation and access, and 1 to wholesale alternation, familiar formula, and closed access.

Some of the follow-up studies (Mair, 2007; Casal Bértoa and Mair, 2009) used, however, continuous variables in order to grasp the degree of change. Below we review the construction of these continuous indicators.

For alternation in government Mair, 2007 adapted Pedersen´s (1979) well-known index of electoral volatility to the measurement of ministerial turnover (calling it the index of governmental alternation, IGA). Thereby IGA was computed by adding the net change in percentage of ministers (including the primer minister)3 gained and lost by each party in the cabinet from one government to the next, and then dividing by two. For example, in a two-party system where a government composed by a single party A is usually replaced by a new government composed of a single party B, the IGA is 100 percent. Otherwise, when a government in which party A contributes 60 percent of the ministers and party B 40 percent is replaced by a new coalition in which party A holds only 30 percent and party C wins the rest, the IGA is 70 percent (Casal Bértoa and Mair, 2009).

3 It is important to note here, that Mair, alone (2007) or with Casal Bértoa (2009), counts ministers and not ministries or portfolios, as these may be sometimes combined under the same person.
Concerning the familiarity/innovation of formulae Mair’s continuous indicator relies on the number of innovative governments as a percentage of all governments in a particular period. This index (called IIA in Casal Bértoa and Mair, 2009) can not be applied to individual governments.

Finally, for access Casal Bértoa and Mair created an index of openness (IO) which “measures the weight new parties have in a particular cabinet as well as the weight such governments (with new parties) enjoy in the party system as a whole” (2009:18-19). IO is calculated by dividing the number of new governing parties by the total number of governing parties.

**New operationalizations**

The existing operationalizations have advantages, but also considerable weaknesses. Dichotomous measures are obviously crude indicators. The appearance of a large new party represents a larger rupture with the past than the appearance of a small one. Therefore in principle continuous variables should be preferred. But continuous variables require additional theoretical and empirical justifications. As demonstrated below all the existing continuous variables can be challenged. Our efforts are directed towards suggesting new indexes that are similar in their logic of construction to each other, capturing the actual degree of innovation by taking the percentage of minister-changes as their starting point.

**Alternation in government**

According to Mair’s IGA high ministerial volatility across parties equals closure. The logic behind this operationalization is probably that closed systems should approach as much as possible the bipolar pattern of competition, which is a transparent, “predictable” pattern. But think of a stable Socialist-Green coalition which is enlarged from time to time with a five percent left-libertarian party! Because
the change amounts to a mere five percent Mair’s (Pedersen’s) index will indicate a particularly open, unpredictable system. Our intuition tells us, however, that in such situations continuity prevails, change/surprise is marginal.

It is of course particularly difficult to operationalize the predictability of alternations. Ideally one would take into account the similarity of the parties and the relationships among them in order to construct the expectations of the players (including the voters) and the eventual deviance from these expectations. The ideological proximity of the parties could be a good anchor, but far from satisfactory. The relations among parties are not identical with their ideological configurations, and to the extent that the two coincide it is difficult to tell which came first. Furthermore, not the actual programmatic positions or images of the individual parties are relevant but whether they belong to particular blocs, and therefore the data-sets traditionally used (manifesto data, expert judgments of policy profiles, etc.) would not be sufficient.

Lacking comprehensive information on inter-party relations prevents us from coming up with (and testing) an ideal measure of alternation. But the improvement of Mair’s IGA is within reach. Our suggestion is that each party composition change should be placed on the continuum between total alternation and no alternation. The distance from the endpoint that is further away indicates the degree of continuity, in a symmetric fashion. So, if 85% of a government is changed then the case is almost a case of total alternation. The number 85 expresses well this high degree of closure. But if a government changes only in 10%, in other words it is in 90% identical with the previous government, then the stability is even higher. The numeric value assigned to this case would be 90. In this way one can assign for each change in government a figure that ranges between 50 and 100, the former indicating openness, the latter indicating closure.⁴

⁴ The scale could be transformed into a 0-100 scale, but since we examine only correlations, that is, standardized coefficients, the transformation would not have any significance.
**Governing formula**

Concerning alternation and access (see below), the construction of percentage-based measures is relatively simple. With the familiarity of formulae there is, unfortunately, more complication. It is probably not accidental that Mair has not suggested a specific continuous indicator of formula that could be applied to single governments.

In extreme cases the construction of such a variable is not difficult. If the very same combination of parties has already governed together in the analyzed period, then one can speak of 100 percent familiarity. If an entirely new combination of parties forms government, familiarity (closure) is 0. In the more complicated case when only part of the new government is familiar we suggest to take the percentage (of ministers) of the “familiar” part as the indicator of closure.

What shall we do with single party governments? Again, if the party has never governed before (i.e. the formula is innovative), the adequate closure figure is 0. But what if the party was already part of a coalition before and now it is alone? Here we propose that the previous coalition partners’ percentage (again of ministers) should be subtracted from 100. So if the Social Democrats, who gave 90 percent of the ministers, decide to continue without the Greens, who dominated only one tenth of the government, the closure is high, 90. In the opposite case the innovation is considerable, since a small, marginal party turns into the government. Closure equals then 10. As a result the index of formula will range between 0 and 100.

**Access to government**

The existing indicator of the access to government (the ratio of new and all governing parties, Casal Bértoa and Mair’s IO) can also be improved, in two ways. First, since all other variables express closure this one must also be re-coded, because in its original form signals the opposite, openness. Second, in order to capture the size of parties (and therefore the magnitude of change), the percentage
of ministers who are controlled by particular parties should be taken into account, again similarly to the other two indicators. The new proposed measure is therefore the percentage of old governing parties. Old governing parties are considered to be all those parties which have already been constituent part of a previous government. The indicator again varies between 0 and 100.

Table 2. Old and new operationalizations of alternation, formula and access

<table>
<thead>
<tr>
<th>component</th>
<th>old dichotomous measures</th>
<th>old continuous measures</th>
<th>new measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>alternation</td>
<td>total alternation or none</td>
<td>Pedersen’s index of volatility for parties/ministers</td>
<td>if vol. is above 50% = vol. vol. is below 50% = 100% - vol.</td>
</tr>
<tr>
<td>formulae</td>
<td>familiar party composition</td>
<td>number of innovative governments divided by all governments</td>
<td>if the very same combination = 100% entirely new combination or new party forms single party government = 0% part of the new government is familiar = % of the familiar part a party which was earlier in government forms a government on its own = 100 - the previous coalition partners’ %</td>
</tr>
<tr>
<td>access</td>
<td>no new party joins</td>
<td>number of new parties divided by the number of all parties in government</td>
<td>% of ministers belonging to old parties</td>
</tr>
</tbody>
</table>

*Time*

The consideration of time is particularly relevant if one intends to characterize the trajectory of a country. Previous attempts that relied on the ratio of innovative and non-innovative governments to characterize periods did not account for the actual
time spent under this or that pattern. Therefore we suggest the reapplication of the indicators to specific years. The government characteristics are multiplied by the number of years the government has lasted. If the country had two governments in 1998, then their averages characterizes the year better than any of the individual features. In summarizing the level of closure for a country one can then simply take the average of the years (and not of the governments).

Composite indicators of closure

In order to make the three dimensions truly comparable we suggest to use the standardized (z-) score of the three variables. A country’s closure score will equal the average score of the three variables. In case of government-based indices time spans are characterized by averaging the scores of consecutive governments. For the year-based indicator suggested above the scores of the years are averaged.

Test of alternative operationalizations

Taking into account all the existing and the new operationalizations, we have altogether 6 alternatives for the country level closure scores.

Figure 1. The six principle alternative operationalizations

```
dichotomous (per year)    old continuous (per year)    new (per year)
continuous (per govt)    continuous (per govt)    continuous (per govt)
```
The empirical analysis below serves the purpose of gaining an insight on the internal links between the three variables. As discussed above there are theoretical reasons to suspect alternation, but it is another question whether empirically this variable fits the overall syndrome. The analysis of correlations will show which of the variables are more central and which are more peripheral within the ensemble. This exercise will also help later efforts to come up with well established weights for the variables. If the relationships across the three variables show internal coherence then the three variables can be treated in the future as components of a scale. Note, however, that for a scale one normally needs more than three items. According to psychometric standards with three items it is difficult to get desirable reliability indicators, that is Cronbach alphas that would go above 0.8.

**Data**

The period analyzed spans the first 18 years of multiparty democracy (in a few post-communist countries a somewhat shorter period could be covered) of 29 countries. The number of electoral cycles taken into account varies between 3 (France) and 8 (Japan).

**Results**

*The occurrence of closed and open patterns*

The analysis of the dichotomous measures shows that out of the logically possible combinations some almost never occur. For example closed alternation, open formula and closed access occurred only three times (Table 3). In more instances (18) partial alternation went together with closed formula and closed access. Total or no alternation was accompanied in rather numerous cases (35) by open formula and open access. The pure types of openness and closure were even more frequent: total closure occurred 41 times, while total openness 43 times. But
interestingly, the most frequent pattern was a mixed one: partial alternation, innovative formula, but no new party joining the government (62).

Table 3. The distribution of the dichotomous indicators of closed and open patterns in 29 countries, 202 cases

<table>
<thead>
<tr>
<th>alternation</th>
<th>formula</th>
<th>Access</th>
<th>number of cases (out of 202)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>+</td>
<td>62</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>43</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>+</td>
<td>42*</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>-</td>
<td>35</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>+</td>
<td>18</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>3</td>
</tr>
</tbody>
</table>

+ = closed, - = open pattern

* 337 years out of 500 spent under this pattern

The frequency of various patterns does not show the dominance in time of these patterns. Taking the number of years into account the completely closed formula is by far the most relevant pattern. Out of the almost 500 years taken into account 337 were spent under governments which were the copies of the previous governments or reproduced an earlier coalition (without a single party from the previous government) and contained no new party. Stability and structure is the rule in democracies.

Table 4 contains the closure scores for all the six operationalizations. The various measures rank countries rather similarly. The mean inter-tem Pearson correlation across the scales was .75, and only one pair of relationships did not reach the level of statistical significance, the one between the new, government-based measure and the old continuous, also government-based indicator.

Table 4. Closure indicators for the first two decades of 29 party systems
The relationships among the three components of closure

<table>
<thead>
<tr>
<th>Country</th>
<th>Closure based on old dichotomous measures (years)</th>
<th>Closure based on old dichotomous measures (government)</th>
<th>Closure based on old continuous measures (years)</th>
<th>Closure based on old continuous measures (government)</th>
<th>Closure based on new measures (years)</th>
<th>Closure based on new measures (government)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>79.2</td>
<td>33.3</td>
<td>42.4</td>
<td>.32</td>
<td>.29</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>96.3</td>
<td>88.9</td>
<td>68</td>
<td>89.3</td>
<td>1.4</td>
<td>1.37</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>84.3</td>
<td>33.3</td>
<td>40.9</td>
<td>86.1</td>
<td>-.34</td>
<td>-1.36</td>
</tr>
<tr>
<td>Croatia</td>
<td>72.9</td>
<td>28.6</td>
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23
According to analyses based on (Pearson) correlations none of the operationalizations justified the treatment of the three components as a scale: a unidimensional, coherent syndrome. The Cronbach alphas never reached the .08 threshold and the factor analyses often produced two factors. Interestingly, the old dichotomous indicators would let us hesitate about the question of scalability, since the Cronbach alpha in their case was .75, a relatively respectable figure given that the scale consists of three items only (inter-item correlation was .51). But the new indicators are considerably less closely related to each other. In case of the yearly based measures the Cronbach alpha was .62, the mean inter-item correlation .35, in case of the government-based indicators alpha was .42, inter-item correlation was .21. Not to mention the old continuous indicators (alpha .38, inter-item correlation .12). In all three cases deleting alternation from the list would improve the integrity of the scales. In the case of the new year-based indicators the alpha would increase to .78. Factor analyzing the three components one confronts the same picture across all operationalizations: alternation is the weakest link in the chain. In case of old dichotomous measures there was only one principal component (68% variance), and alternation had the weakest loading (formula .98, access .75, alternation .73), while in the case of the two other operationalizations alternation appeared on a second factor.

The reliability analyses and the factor analyses showed clearly that formula is the kernel of closure. Formula had in all three cases the largest loading on the main factor and its deletion would have pushed the alphas to very low levels (in case of dichotomous measures to .22), or (in the other two cases) would have resulted in negative figures.

**Conclusions**

The outcome of the exercise above is a new operationalization of closure. The indicators are superior in terms of conceptualization. They are more uniform and
transparent in their logic of construction. They follow the original three-component model of closure, offering one indicator for each component and they are all based on percentages of ministers controlled by parties. The latter solution not only provides similarity across the components but also allows us to capture the degree of change in a more efficient way than it has been done in the past. The units of measurement are not defined only by particular party configurations but also by new elections and therefore we are able to record ‘no alternation’. Thereby the suggested operationalization treats the option of no turnover equally with the option of total alternation, according to the original idea of Mair. The operationalization of alternation takes both total turnover and no turnover as benchmarks, in a symmetric fashion. The indicator of formula can be applied to also single governments, not only to longer time periods. Finally, some of the suggested indicators are able to capture the temporal dimension by taking into account the number of years spent under a particular pattern.

The analysis has also shown that the three components tend to covary, the variables correlate positively. But these correlations are not high enough to allow us to construct a uni-dimensional closure scale. The primary reason for the lack of coherence lies in the particular behaviour of alternation in government. Alternation reflects closure, but not as accurately as the other two components. Formula, on the other hand, was found to be relatively closely related to both alternation and access. It seems that both conceptually and empirically formula is the kernel of closure.

Based on the empirical analysis above it would be too early to suggest specific weighting of the variables. Although we are convinced that alternation partly measures something different than closure, one must admit that the boundaries of the concept of closure are not precise enough to determine the exact weight of its components, and trade-off mechanisms among the components cannot entirely be excluded.
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