# NEW ANALYTICAL MODEL FOR NUMBER OF PARTIES AND ITS APPLICATION TO INDIAN STATES

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# Abstract

The number of parties has been one of the crucial markers in the comparative understanding of democratic polities. Since the 1950s, substantial intellectual energy has been invested in devising methods and indices to count the number of parties. While some methods have gain prominence, and others have not, the quest still continues. This thesis looks into the efforts of several decades into two camps – continuous and discrete measures – their evolution, strengths, and limitations. It further goes on to propose a new method based on a robust theoretical understanding of parties as a part of the pluralistic whole. The new method is bifold in that there are explicit counting rules followed by a typology that demonstrates the employability of this method. This methodological exercise is appended by coding of 116 Indian state elections that happened in 31 legislatures between 2000-2018. It eventually ends with a conclusion enlisting what has been achieved and what can be done for this model to travel beyond the case of India.

# Acknowledgements

This enterprise started as a small classroom presentation in a not so very congenial ambiance. It was 28th of November 2018 Wednesday, a chilling day with subzero cold, and makeshift classroom in front of a palatial parliament. The students of a distressed institution were symbolically taking on a political Goliath, the prime minister of Hungary, through their protest. Amidst the institutional consternation, academic vibrancy was intact. The tutor, Prof Zsolt Enyedi, to my surprise, acknowledged the potential of this project and encouraged me to pursue it as a thesis. I was elated. Since then, Prof Enyedi's avuncular interest towards a student who is callow due to no political science background has remained a source of encouragement. Despite organizational commitments and minimal scope for personal engagement, his lengthy emails wrote over the weekends have saved me from intellectual ignominy. Flaws that remain are all mine. The first gratitude is due to him.

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## Section 1 – Introduction

In the last few decades, substantial intellectual energy has been invested in devising methods and indices to count the number of parties. The primary intent of this exercise is to understand the fragmentation of power in electoral democracies. Moreover, the number of parties, independently or along with other measures, is employed to classify party-system type. It is one among the few important classifications for comparative exercises. One can see two approaches to the counting exercise: to use a continuous scale or to use a discrete classification or in the words of Sartori (2005, 263) "in kind" and "in degree." The continuous mathematical indices, despite its wide application in the discipline, are marred by some technical and interpretive challenges. The discrete methods are tedious and time consuming with a nearly-zero statistical appeal. A further problem, as I notice in this paper, is the lack of theoretical underpinning. Many models seem instrumental and heuristic in that the means employed do not enjoy sound reasoning so far as the outcomes produced conform to our intuitive understanding of fragmentation. They falter on basic questions such as why we are leaving out parties less than x% vote or why we should not count parties in the opposition. The aim of this thesis is to suggest a new model that is theoretically grounded in the Sartorian framework with potential wider applicability. The model has two components – (a) a new method of counting number of parties and producing an index based on that, and (b) a typology of party-systems based on that index. The innovation of this exercise lies in the former as it goes against the current trend of using arbitrary formulae and cut-offs. The latter is included to ensure immediate empirical employability. The overall exercise is a demonstration that number of parties can be counted using a theoretically robust and non-arbitrary method while producing a typology without leaving any scope for error.

As any other model developed thus far is a postdictive exercise wherein a set of polities are observed and a scheme that encompasses most cases is outlined, this model is a product of

observation of non-western polities that defy left-right unidimensionality. The Indian states – a set of 31 sub-national legislatures – that have undergone elections for over 70-years and now have a rich array of data with 600-odd elections are taken as a starting point to understand patterns of interaction between parties. These states vary in size, number of parties, socioeconomic condition, historical legacies, and so on. Many similarities such as electoral system, institutional rules, clientelism, developmental challenges, widespread poverty, and the overarching Indian state make them coherent enough as a comparable pool. It is assumed here that many states of the Global South share socioeconomic, political, and institutional factors with the states in India, and thus, the model can be immediately extrapolated.

The first part of the exercise that entails counting number of parties is named here as "osmotic method." The scientific process of Osmosis segregates a mixture of fluids according to their concentrations. Similarly, the parties are segregated in this model based on their governmental potential without leaving out any party that manages to reach the parliament. This allows us to take a snapshot of the parliament in one single tri-digit notation. In the subsequent step of creating typology, only the significant parties defined here as those parties that mutually exhaust within themselves the possible permutations of government formation meaning a government could not be formed without them are accounted to classify a party system. The model is simpler as it takes into account only one dimension viz. "governmental potential" derived from electoral strength and eschews complexities of multi-dimensionality by not including left-right, coalition partners, the share of cabinet positions, blackmail potential, etc. Some important contributions of this model are outlined in a later section. However, I would like to point the theoretical robustness and ease of interpretation as the two strong features of this exercise. The research question of the thesis can be framed as follows: What is state of the art regarding counting number of parties or measuring fragmentation? What are the issues and challenges still left unaddressed? Is there a possible way to address them?

The organization of the remaining part of the thesis is as follows. The first two sections discuss state of the art in both approaches – continuous indices and discrete models. Both these sections serve as literature review, although they are not titled as such. The third section introduces the reader to party politics in India and its distinct features which is a necessity as later sections are replete with examples from Indian states. The following sections introduce the index, spell the counting rule and outline the typology. The remaining two sections discuss benefits of this exercise, the scope for wider application, limitations, and a conclusion. This is a methodological thesis as in it proposes a new method for counting number of parties, and thus, there is no separate methodological section outlined here. Eventually, there is an appendix that includes a dataset of 116 Indian state elections between 2000-2018 coded using this model.

## Section 2 – The Continuous Indices

The methodological camp dealt here is defined as "continuous indices" because the measure of political fragmentation assumes a decimal form. With the advent of Laakso and Taagepera (1979), there was a layer of intuition added to this abstract decimal value. In this chapter, we deal with these developments chronologically followed by sections on technical and interpretive challenges associated with this camp.

### 2.1 Pre-Laakso Taagepera attempts

One of the earliest attempts to understand the nature of polity was driven by the idea of reducing the fragmentation of power into a single digit. To achieve this goal, scholars borrowed the concept of concentration of market from the discipline of Economics as derived by Herfindahl and Hirschman popularly known as HHI. HHI is measured as follows:

$$HHI = \sum_{i=1}^{n} s_i^2$$

$s_i$ = market share of the ith firm

As a single digit score, HHI indicates competition within a particular economic sector with varying number of firms having different market share present. There were some clear parallels with a parliament where various parties with various numbers of seats (or percentage of power) were present. In the early 1970s, political scientists picked up HHI to build their own indices. For example, Ray (1967) came up with a fractionalization index calculated as $I = 1 - HHI$[1] and Flanagan (1971) suggested a fragmentation index $F = \sqrt{HHI}$. The index still remains attractive as a measure of political fragmentation [cf. Klingemann (2005) who uses *1/HHI*]. To increase HHI's appeal for polities with a clear left-right distribution of parties, Sigleman and Yough (1978) created a variant index. The individual component here is the product of the weight of

[1] Rae in a co-authored work earlier Rae and Taylor (1970 22-44) uses the inverse of this formula *1/1-HHI*.

the party and its difference from the mean left-right score of all parties. The "polarization index"[2] is computed as follows:

$$P = \sum_{i=1}^{n} f_i(x_i - \bar{x})^2$$

$f_i$= vote share of the ith party; $x_i$= left-right score assigned to the party; $\bar{x}$ = system mean of left right score

While the usage of HHI was prominent in that era, other concepts from various disciplines were borrowed to achieve the same goal. I would like to point to two examples. First, Wildgen (1971) came up with a "multipartism index"[3] which according to him was more suitable for "hyperfractionalized" societies compared to Rae's fractionalization index F. The formula is a derivative of Shannon's H, a measure of entropy in a system.[4] The index I is measured as:

$$I = antilog[-\sum_{i=1}^{n} p_i . logp_i]$$

$p_i$= vote share of the ith party

The second example is of Mayer (1980) who takes an entirely different approach of distinguishing "between the fragmentation of the government and the opposition." (p.517) Mayer's aggregation index is measured as follows:

$$A = \frac{V_{p1}}{NP}$$

$V_{p_1}$= vote share of the first party; $NP$ = total number of parties

There were still other attempts to gauge competition and fragmentation in different ways. For e.g., Mayer (1972), Milder (1974), Sartori's (2005) modification of Rae's F, and so on.



[2] A further modification to this polarization index was adopted by Dalton (2008) who measured left-right parties on a scale of 1-10.

$$P = \sqrt{\sum_{i=1}^{n} \frac{f_i(x_i - \bar{x})^2}{5}}$$

$f_i$= vote share of the ith party; $x_i$= left-right score assigned to the party; $\bar{x}$ = system mean of left right score

[3] Originally used by Kesselman (1966)

[4] The antilog function is not present in the original Shannon's H. For recent application of Shannon's H to count number of parties, see Greene and Bevan (2013).

Despite a decade long exercise in reducing the concentration or fragmentation of power into a single digit, none of the indices become universally acceptable. The derived number had very limited immediate and intuitive information to offer. If some of them were successfully able to measure fragmentation, the indices faltered on their utility when used for diachronic comparison [cf. Pederson, 1980]. The discipline was still in search of a benchmark measure that was both universally acceptable and applicable.

## 2.2 Laakso-Taagepera Index

In 1979, Laakso and Taagepera (1979) completely altered the state of the discipline by employing HHI to the count the Effective Number of Parties (ENP) instead of using it to measure fragmentation. ENP is computed by inversing HHI:

$$Np = \frac{1}{\sum_{i=1}^{n} p_i^2}$$

$p_i$= vote share of the ith party

Primarily, it is measured using the vote-share of each party ($N_v$), but occasionally, for plurality systems, the seat-share of parties is also used ($N_s$). Mathematically, it prioritizes the weight of parties in terms of their relevance to the aggregate index favoring the relevant, bigger player and discriminating minor ones. Thus, the Plaid Cymru (Party of Wales) that secured 0.6% vote in the 2005 British election would add a merely 0.000036 to the aggregate index (cf. Wolinetz (2006, 55).

As a variant of HHI, ENP basically indicates fragmentation of power. Nonetheless, the brilliance of the scholars lies in adding a layer of interpretation to this index of fragmentation. As explained by the Laakso and Taagepera (1979, 4), the index produces, "the number of hypothetical equal-size parties that would have the same total effect on fractionalization of the system as have the actual parties of unequal size." Emphasizing what Np has intuitively to offer, Golosov (2010, 173) noted, "The crucial parameter on which NLT outperforms both HH and F is that it has more intuitive content." Taagepara (2002, 5) further explains this intuitive content, "$N_{[LT]}$ = 3.2 evokes the image of approximately three parties, while the corresponding

HH = 0.31 or F = 0.69 evoke no such images… The latter are abstract indices, while $N_{[LT]}$ can be visualized." This exercise now put the practitioners of continuous scale in the same league as those counted parties manually. A decade later when Taagepera and Shugart (1989, 79) applied this formula to 48 number of democracies, they observed: "In nearly all actual election results N is within ±1 of the number of parties having more than 10 percent votes, but N is much more sensitive to small changes since it can assume fractional values." In a way, ENP measured how many effective players share the power between themselves, albeit on a continuous scale.

In more than a decade, Laakso and Taagepera's index became one of the most prominent measures in calculating the number of parties. Noting ENP's popularity wrote Lijphart (1994, 68), "in modern comparative politics a high degree of consensus has been reached on how exactly the number of parties should be measured." There can be four major reasons attributed to its success. First is its computational simplicity and objectivity. It is a one-step process that requires no special understanding of a particular polity, and any computer program can easily calculate the index based on raw data. Second is the intuitiveness that it has to offer in that while concentration or fragmentation are still abstract concepts, number of effective parties is intuitively far more satisfying. Third, it has a strong statistical appeal. As the ENP can assume any decimal value, its correlation with other innumerable indicators that are measured on a continuous scale can easily be established. Fourth, since it is a continuous measure sensitive to all types of changes, its utility for lateral and diachronic comparison is far better as it incorporates the slightest of the changes.



## 2.3 Technical challenges with ENP

In this section, we shall discuss two major technical challenges associated with ENP and how some scholars have offered solutions to ameliorate the situation, albeit with little success. One of the mathematical properties of this formula is that prioritizes the weight of parties in terms of their relevance to the aggregate index favoring relevant, bigger player and discriminating

minor ones. Nevertheless, the feature that makes it intuitively appealing and widely applicable, according to one of its original proponent Taagepera (1999, 500), also creates a "structural problem." The structural problem is that as the dominance of the first party increases and approaches to 50%, the aggregate index starts producing undesired results. Once it crosses the 50% mark, the results are even quirkier culminating into ENP of 3.00. Sartori (2005, 273) noticed the same problem in context of Rae's (1967) F-index, "the measure actually overvalues the larger parties and compresses too quickly the smaller ones." There are three major solutions offered to this problem thus far. I will enlist all of them and associated difficulties.[5]

Before Taagepera (1999), Molinar (1991) noted this discrepancy and offered a solution in terms of a modified index. Touting his index (MNP), Molinar (ibid. p.1384) argued that it addresses both issues, "overcounting of large parties and excessive sensitivity to small ones." His index is given as follows:

$$N_M = 1 + N\frac{(\sum_{i=1}^{n} p_i^2) - p_1^2}{\sum_{i=1}^{n} p_i^2}$$

$p_i$= vote share of the ith party, $p_1$= vote share of the first party

Consider the following table that captures both Np and Nm for a set of hypothetical case as given by Molinar himself:

| Case | Division of Seats | | | | Np | Nm |
|---|---|---|---|---|---|---|
| **A** | 55 | 45 | | | 1.98 | 1.79 |
| **B** | 55 | 35 | 10 | | 2.30 | 1.70 |
| **C** | 55 | 25 | 20 | | 2.47 | 1.62 |
| **D** | 41 | 39 | 20 | | 2.78 | 2.48 |
| **E** | 41 | 20 | 20 | 19 | 3.52 | 2.44 |
| **F** | 41 | 39 | 12 | 8 | 3.28 | 2.49 |
| **G** | 41 | 39 | 10 | 10 | 3.30 | 2.49 |

What we see here is an excess deflation in cases A, B, and C which are apparently the cases of dominance of the first party. Molinar tries to defend this deflation below 2.0 as "others may

[5] Because there are multiple indices discussed here, the name of the author will be subscripted in this section.

prefer the decrease, because the swing produces a format that resembles a dominant party system." (p. 1387) Let us assume that 55-45 is the actual reflection of the US Congress, which is a two-party system and, in that case, Np captures reality better than Nm. There remains a bitter choice, according to Molinar, between inflation and deflation in cases of dominance ($p1>0.5$).

Realizing this challenge, Taagepera (1999) himself proposed to capture the party configuration by a set of two numbers: ENP should be supplemented by "the largest component approach" (LC) calculated as $1/p_1$. The ENP basically comes from the broader family of power index formulae which can be represented as a generalized equation below:

$$N_a = [\sum p_i^a]^{1/(1-a)}$$

Thus, we get ENP or $N_2$ at $a = 2$. In this equation, when $a \to \infty$, $N_\infty$ captures only the influence of $p_1$. Intuitively, "the addition of the second-order index $N_\infty$ is seen to reduce appreciably the possible range of the second-largest component." (p.501) Thus, what we can know for sure by looking at $N_\infty$ to $N_p$ simultaneously is the role of the largest party within that fractionalization. Taagepera's cure is worse than the disease because it kills the primary purpose of rendering the system into an aggregate index that can be used for statistical purposes.[6]

A third solution was suggested by Dunleavy and Boucek (2003) based on Taagepera (1999). They proposed to take the arithmetic mean of ENP and LC (or $N_2$ and $N_\infty$) as follows:

$$N_{DB} = \left(\frac{1}{\sum_{i=1}^{n} p_i^2} + \frac{1}{p_1}\right) \times \frac{1}{2}$$

$p_i$= vote share of the ith party, $p_1$= vote share of the first party

The primary assertion of both authors is that "two inherently limited numbers are not much use to anyone, and if they can be combined more productively then they should be." (p. 302) The

[6] To manage this issue of double indices, in yet another attempt Taagepera (2005) proposes a solution in form of -log $p_1$/log n where n is the total number of components which he calls "index of balance." This attempt has its shortcomings which I am not discussing here due of space.

first issue with this attempt is that there is no underlying sound judgment, statistical or theoretical, to promote such a "productive combination." By creating an arbitrary index that controls the extreme behavior of Np for $p_1>0.45$ and the hyper-deflation of Nm, the authors seem rather content. Second challenge is interpretive in that the authors are silent about how this combination should be interpreted intuitively – does it more accurately reflect fragmentation, or it still reflects effective number of parties.

There is one more technical challenge associated with the structural challenge that we discussed earlier as discovered by Dunleavy and Boucek (2003) and known as "kink effect." It is a discrepancy in ENP when p1 dominates the power share especially when it is between 0.45 and 0.55. It is can be described as unusual contamination of ENP in terms of sudden steep fall between $0.45<p_1<0.55$ as $p_1$ moves by each unit on the scale. For a better understanding of the kink effect, one needs to refer to the graphs in Dunleavy and Boucek (2003). However, even the discoverers of this effect are not able to entirely eliminate this technical discrepancy in their proposed solution.

## 2.4 Alternative indices to HHI

Neither of the indices, nor the solutions were entirely satisfactory. Some of them kill the purpose of producing a single digit indicator, while others kill the intuition. Some hyper deflate, others falter on reality. Scholars aware of these limitations have entirely eschewed the path of further reformulating or ameliorating HHI-based index and have suggested alternative indices. However, a structural shift that we see with these newer endeavors is that the concept of fragmentation as an abstract number was now entirely left aside. The only concerns the authors shared was to produce a number that agrees to our intuitive counting of number of parties. I will highlight here two of them while mention in passing the remaining.

The first solution was proposed by Dumont and Caulier (2003). While there is not much innovation and industry in their index, they propose replacing fractional share of the ith party in the Np by $\beta_i$ [Banzhaf score] or the voting power index. The power index was introduced

by Banzhaf (1965) which measures "power as influence" over the outcome of a decision. Thus, the emerging formula for what they define as "effective number of relevant parties" is:

$$ENRP = \frac{1}{\sum[\beta_i]^2}$$

$\beta_i$ = Banzhaf score of the ith party

The most demanding part with this index is the cumbersome calculation of Banzhaf score. Although the promoters of the index maintain a webpage for calculations (see ibid., n#27), it still becomes a two-stage data-processing method. More than computational simplicity, Banzhaf index is an *a priori* index in that it enumerates probable outcomes (not in a game theoretical way, see Albert (2003)), and then measures power within this probability set. The resulting index even if intuitively similar to ENP (and in some cases *not* as I will demonstrate later) has no direct theoretical correlation to fragmentation of power. Any mathematical index that coughs out a number that reasonably matches our intuitive counting of number of parties cannot be adopted without a robust theoretical basis for it.

The empirical challenges of assigning undue weightage remain with ENRP as well. For example, 0.47-0.47-0.04-0.02 the Banzhaf score for 0.47 is the same as it is for 0.04. The resulting ENRP would be 1 meaning a one-party system which is not the case. Sometimes it can work the other way around. It can entirely ignore the weight of a major party. For example, assume a configuration 0.48-0.32-0.01*20 for a 100-seat assembly. The ENRP outcome is 1.004 because the second major player 0.32 yields a Banzhaf score of 0.0001 (almost 0). Intuitively this particular configuration is not a one-party system too.

The second solution comes from Golosov (2010) who introduced a new index that takes $p_1$ itself in the formula and is calculated as:

$$N_G = \sum_{i=1}^{n} \frac{1}{1 + \left(\frac{p_1^2}{p_i}\right) - p_i}$$

$p_i$= vote share of the ith party, $p_1$= vote share of the first party

Golosov, like his counterparts who work on HHI or its variants, is trying to produce an intuitively acceptable number of parties. There is no rationale offered behind the selection of mathematical variant from the family or indices with arbitrary constant. Despite that, one good point about his index is that weight of individual component can be counted. Golosov's $N_G$ performs better in some cases but not always. It fails our earlier constellation 0.48-0.32-0.01*20 taken for example. In fact, Golosov's $N_G$ falters to the same extent as $N_{DB}$ of Dunleavy and Boucek. See the table:

| **Index** | 48-32-1*20 |
|---|---|
| ENP (Laakso & Taagepera) | 2.99 |
| $\boldsymbol{N}_{\infty}$ or LC (Taagepera) | 2.08 |
| Np (Molinar) | 1.93 |
| $N_{DB}$ (Dunleavy and Boucek) | 2.54 |
| ENRP (Dumont & Caulier) | 1.00 |
| $N_G$ (Golosov) | 2.55 |

One particular constellation is not the sole measure of success for any index. However, the intent here is to demonstrate there is always a case that can work as a counterfactual to the success of an index. From our analysis and literature review, what we can say is that a mathematical index perforce can satisfy most but not all cases. There is always a potential of getting a particular configuration wrongly counted while employing a continuous index of counting number of parties.

Before I move to empirical and interpretive challenges, I would like to mention in passing two more non-HHI based models that are much more complicated and seldom used. Grofman and Kline (2011) suggested to count number of "ideologically cognizable" groups or coalitions using an algorithm developed by Grofman (1982). An equally computationally complex approach known "compositional method" is suggested by Rozenas (2012). We are not discussing them here.

## 2.5 Empirical and interpretive challenges

The structural shift brought by ENP was to move from abstract concept of fragmentation to visualizable and comprehensible number of parties. This not only addressed the previous

concern of measuring fragmentation but also put the practitioners of continuous scale in the same league as those counted parties manually. Even those who eschewed the use of HHI given its pitfalls such as Dumont and Caulier (2003) or Golosov (2010) clinched to the idea of counting number of relevant players rather than using their improved indices to measure fragmentation more accurately. There was a certain appeal with this idea of producing "effective," "serious," or "relevant" number of parties. While the idea had far more to offer and was far more evocative, it was also marred by some interpretive and empirical challenges as I shall outline now.

First among the major challenges to all the continuous indices is that a particular decimal unit does not necessarily represent fragmentation of a unique constellation. Thus, multiple similar constellations can have the same resulting number. For example, consider three constellations for n=100 (a) 0.34-0.33-0.33, (2) 0.41-0.37-0.16-0.06, and (3) 0.53-0.12-0.12-0.12-0.11 all reflecting the same ENP value of 3. In reality, all three fragmentations are entirely different. There is no way one can differentiate between them merely looking at number 3. Pederson (1980) made a similar point against Rae's index calling it a "lack of discriminating power." The lack of discriminating power is a charge that can be made against decimal sensitivity as well. If a polity initially has an ENP of 2.72 and it then reduces to 2.62 or increases to 2.82, there is no concrete meaning associated with that change. There is also the daunting challenge of what exactly 0.72 means. This is not limited to just ENP, but it is applicable to all continuous indices.

Second challenge is inherently associated with the very concept of creating "the number of hypothetical equal-sized parties." (Laakso and Taagepera 1979, 4) The challenge is that in the attraction to amalgamate all parties to reproduce hypothetical equal-sized parties the individual weights and strengths are lost. Not just the ENP, all those indices are fascinated by this idea are marred by the same challenge. Noting this objection Pederson (1980, 398) writes, "this

condensation is done in such a way that the indices are insensitive to the identities of the individual parties in the system at time t and t+1." One can argue that this type of mathematical exercise is a systemic level macro analysis, and the expectation of able to count independent weights should not be made an absolutely necessary expectation. However, as Golosov (2016, 279) notes, "An important methodological desideratum (and one of the inequality axioms) is the requirement of decomposability, according to which the measures of complex phenomena should be built in a way that allows for disaggregating them into individual elements." What Golosov terms as "decomposability" becomes particularly relevant in the wake of the earlier challenge where the index is susceptible to faltering on one-on-one uniqueness.

One can suggest two alternative solutions to mitigate the crisis of decomposability. The first one is to use Banzhaf (1965) index or Shapley and Shubik (1954) power index to measure the power of a particular component (i.e., party). The resulting score effectively suggests a type of influence in a particular set of circumstances which is theoretically not the same as the actual normalized weight of that particular party. Moreover, we have briefly discussed in 2.4 the limitations of such power indices in particular cases where either there is undue weightage is attributed to minor players or some major players are entirely discounted. A second alternative is suggested in passing by Golosov (2016) taking lead from Jones and Mainwaring (2003). He suggests using party system nationalization score to create an index that allows to gauge the strength of individual component. Again the theoretical interpretation is not the same as counting the weight of a component within those hypothetical equal-sized party. What we need to know, for example, is what a particular party contributes to the aggregate ENP value of x at t and y at t+1. This disaggregation still remains an unresolved challenge.

The final issue comes to fore when the continuous indices are employed in the real-world situation. One of the applications of these indices is to determine the type of polity by applying cut-offs to the number of parties. Taagepera and Shugart (1989), Mainwaring (1993), Lijphart

(1994) (1999), Cohen (1997), Mainwaring and Sculling (1995), Power and Gasiorowski (1997), Coppedge (1998), Foweraker (1998), Siaroff (2000) are some of the examples of this application. However, as Bogaards (2004) have pointed roughly half of these arbitrary numbers fail if one simply calculates "actual number of parties" based on Sartorian guideline. However, the trend of applying arbitrary cut-offs to convert these numbers into types of polities continues despite such limitations alluded earlier [cf. Golosov (2014)]. If the number arrived based on the formula in itself is not entirely accurate and that issue is then compounded by arbitrary cut-offs, the resulting comparative exercise receives a double whammy only to produce misleading conclusions.

In this section, we have seen the continuous evolution of mathematical indices and the insurmountable challenges that are still ahead of them. Their application in determining the nature of the polity can produce distortions. In the subsequent sections, we will go through the other camp that prefers creating a typology by manually (or intuitively) counting the number of parties.

## Section 3 – The Discrete Method

At the inception I should state that the discrete method of counting number of parties, the way I describe here, is not a homogenous camp that has allegiance to one method or the other. There are huge disparities within this small camp. The previous camp of continuous indices evolved with the primary concern of fragmentation and moved to counting number of parties. Fragmentation, in some cases, was used solely to categorize polities. However, in other cases, it was merely treated as one among the many properties of party system type.[7] For example, Sartori treats fragmentation at par with ideological polarization. Instead of moving from number of parties to typology, this camp works other round meaning they start with typology and then move to the counting of number of parties. This is true for most if not all cases. Similar to the previous chapter, we shall continue to trace the developments chronologically.

The first attempt comes from none other than Maurice Duverger (1954). Duverger understood party system as "forms and modes of coexistence" of parties. (p.203) While Duverger starts with the classic typology of his time – two-party system, one-party system, and multi-party system, he later moves on to individual strength of parties. He classifies parties into three categories: (1) parties with a majority bent (2) major parties and (3) minor parties. (p. 283ff) He attempts to position these three types of parties in different party-system types of his typology. While Duverger started on a precise note, he did not conceive three types of parties as unitary blocs of which any party system can be built. On the other hand, he entirely obfuscates the method of measuring their strength. [Read his metaphors on p. 288] He truly emphasized the point that arbitrary cut-offs can be misleading and misinformative but chose not to provide an alternative.



[7] For example, Taylor and Herman (1971) use fragmentation as one variable in understanding the stability of government system, Lane and Arson (1987) Ch. 5 as a property, and Sartori (2005) as one of the two variables in deciding party system type.

Many nearly coeval successors of Duverger – Dahl (1966), Lijphart (1968), Blondel (1968), and Rokkan (1970) – chose a slightly different path of measuring party strengths by computing cumulative percentages of votes or seats. By employing the cumulative method, these scholars were indirectly gauging the relative strength rather than the absolute strength. Moreover, their overarching concern was the amount of power the major parties – one, two, three, or more – are accumulating collectively. Thus their labor of approximating the cumulative strength of n number of parties was a comparative heuristic for cross-polity analysis rather than a definitive method. As Lijphart (1968, 33) suggested, "the most objective and straightforward way of comparing the numbers and sizes of political parties in different systems is the cumulative percentages of party strengths in descending order of party size." Despite many developments, this method still remains an attractive point to start a comparative exercise in some cases [cf. Van de Walle and Butler (1999), Reynolds (1999)] The method doubtlessly has a comparative utility in that the collective strength of major player(s) can be compared across the unit. The shortcoming however is that the method cannot be employed for assessment of a particular fragmentation. I would like to sum up the developments from Duverger to Rokkan this way: the principal obsession of this period was classifying and comparing democracies and party system was but one tool; so far as the research exigencies were addressed, the endeavor to devise a standalone enumeration method did not take the center stage.

Continuing the earlier attempts, Sartori (1976) slightly improves on the work of his predecessors. He defines his approach as established based on 'position values' (very similar to that of Lijphart, Blondel, and Rokkan), in contrast to Rae's fractionalization index that takes into account quadratic performances. Sartori defined his groups based on "natural size threshold" which for the parliamentary majority was 50% seats. He then goes on to differentiate three scenarios where a single party, two parties, or multiple parties breach that threshold. Like Duverger, Sartori also classifies individual parties based on relevance as "a party that forms a

government, enters a government, or supports it at the vote of no confidence." (p. 268) Same as Duverger, he neither maps these individual parties over his typology nor gives absolute or relative cut-offs to determine the strength of individual parties. Additionally, Sartori stresses to discount the parties that have never been into government (based on his definition of governmental relevance). (ibid.) In other words, he was not interested in taking a full snapshot of the parliament and more or less continued the practice of his predecessors.

Thus far what we see is the obsession with classification and comparison without any consideration whatsoever to independent parties as unitary blocs and their strengths that shape the party system. Even if some ink was spilled to identify nature of individual parties, no specific counting rules were spelled, nor absolute or relative benchmarks set to identify those parties. While most scholars found this idea of putting "arbitrary cut-offs" preposterous, no alternative method was suggested.

While the 1960s and the 1970s witnessed these stopgap measures, some of these scholars switched to effective number of parties as developed by Laakso and Taagepera (1979). Perhaps, the first one to apply ENP on a wider scale was Lijphart (1984, 106-126). Measuring individual strength was never the primary concern of most of these comparative scholars. The ENP results far more suited them as they conformed to their individual assessment of the number of relevant, significant, or serious players. Taagepera and Shugart (1989), Lijphart (1994), Lijphart (1999) are some other examples of major cross-polity comparisons. However, neither Taagepera and Shugart (1989) nor Lijphart (1994, 1998) suggested strict cut-offs for ENP as the measure can assume any decimal value. They assessed the fluid values on a case to case basis. On the other hand, there were scholars focusing on Latin American party system who were setting precise cut-offs to determine party system type. For example, Cohen (1997) strictly treats ENP<2.0 as a dominant party system, 2.0-2.9 as a two-party system, and >2.9 as a multi-party system. There are several challenges with this as I will briefly outline.

First, when ENP is invoked, all associated flaws also creep into the calculation. For the sake of brevity, I am not reiterating how the flawed the use of ENP compounded by such arbitrary cut-offs can be. The earlier chapter has dealt with it sufficiently. I want to add another relatively minor yet empirically important issue to the slew of challenges, and that is of input duality. ENP is employed using both vote share and seat share as the ith share in the formula producing ENEP (Effective Number of Electoral Parties)/Nv and ENPP (Effective Number of Parliamentary Parties)/Np respectively. It is a scholar's prerogative to choose either of them. What is noted is that scholars working on the same region focusing on similar research questions use different inputs diminishing the comparative utility of their project. For example, Mainwaring and Scully (1995) and Coppedge (1998) both work on Latin American party systems and employ nearly similar methods of differentiating party system types based on cut-offs. However, the former uses Ns while the latter uses Nv. Ns and Nv have an observed difference anywhere between 0.35-0.40 [Laakso and Taagepera (1979); Lijphart (1984); Taagepera and Shugart (1989)]. The difference between their cut-offs should ideally be the same which is not the case. Even if we do not cavil about the accuracy, the usage of different methods limits the external validity of the research as well as severely constraints comparability. To add to this complication, Golosov (2014) who has developed his own index $N_G$, an alternative to ENP, uses it with cut-offs to develop a separate typology. Off-late, his index is followed by some scholars too. Although, the morphology of this exercise looks uniform at face value, there is a seeming lack of consensus on everything from counting method to ensuing classification.

In this brief section, we have noticed that some earlier efforts were expedient measures and never a systematic "counting method" was developed. Since Laakso and Taagepera (1979) most scholars have switched to the mathematical camp. However, issues such as flawed output of ENP, arbitrary cut-offs, input duality and lack of consensus, among others continue to haunt

the discipline. The project that Maurice Duverger started by conceiving party system as a composite of three different categories of parties was never taken to its logical end. The counting rules that this thesis outlines take forward that project ahead. Since the empirical part of this counting method heavily involves Indian states, we shall briefly discuss the state of the Indian party system in the subsequent section.

## Section 4 - The state party system in India

Perhaps, it would be impossible for anyone to briefly explain the socioeconomic dynamics of Indian society and its reflection in the political realm which includes the regional[8] variations in party system types. Nevertheless, I attempt here to recount some important political, social, and institutional facets of Indian party system as they operate at the state level.

India currently has 29 states and 7 union territories of which 31 has their legislatures that regularly go to polls every five years and select their representatives based on the principle of universal adult suffrage. The states widely vary in terms of population size ranging from half-a-million (Sikkim) to 200 million (Uttar Pradesh). The last major state reorganization happened in 2000 (thus the selection of period for this analysis) after which only one new state of Telangana was carved out in 2014. Most states in India are divided into linguistic lines. The Northwestern part – sometimes known as the Hindi heartland or the cow belt – either speak some variant of Hindi or Hindustani or a language close enough for the common person to understand Hindi. Most other states in the South, East, and Northeast have their own languages, so distinct from each other that the immediate neighboring state can hardly comprehend it. No wonder, hardly one non-Hindi speaker (HD Deve Gowda) has been able to become the prime minister of India for a brief tenure. What it also means, for state parties, is that one leader from a state hardly has cross-regional appeal due to linguistic limitations.

The Election Commission of India (ECI) which holds the reputation of being fairly neutral manages the election. Eight state assemblies are bicameral whose lower houses are filled directly while others are unicameral. India uses the first-past-the-post (FPTP) system at the state assembly level too. The campaign finance for an individual candidate is restricted by law but not for the parties. However, in reality, candidates vastly outspend the stipulated amount. Elections are marred by clientelistic practices as well as violence in many parts, especially rural

[8] I use the word regional and state interchangeably. In empirical literature, however, they have different meanings.

constituencies. Indian society is divided into innumerable castes – a marker of social hierarchy – which still remains a major factor in an individual's choice of candidate. This trend of voting for "co-ethnics" under the expectation of group benefits has led some scholars to label India as a "patronage democracy." (Chandra 2004) There is also a huge urban-rural divide in India which is evident when one closely observes intraregional voting differences within a state (Varshney 1998).

As an inchoate democracy, India started its universal adult suffrage experiment with mostly illiterate and poor masses. Thus, it chose to use symbols rather candidate or party names on the ballot (party names on EVMs are technically outlawed). Post-2003, India has stopped using paper ballots and switched to electronic voting machines (EVMs) for all elections. The sheer number of parties that participate even in a state election can be overwhelming. In the 2017 Uttar Pradesh elections, the biggest state in India, some 302 political parties fielded 3391 candidates followed by 1462 independents for 403 seats. Despite the soaring number of parties participating in the electoral process, merely 8 parties were able to send their representatives to the state assembly. Hence the ECI usually categorizes parties in four different categories based on certain voting benchmarks – (a) national parties (parties having national presence that participates in state elections), (b) state parties (parties that are significant in a particular state), (c) state parties from other states (parties that are recognized as significant in other states but not having the same recognition here) and (d) registered yet unrecognized parties (all other parties that wish to be registered for a symbol).[9]

Politically speaking, it is difficult to peg the parties on a unidimensional scale of left-right in India like in the west. Usually, the parties that subscribe to communist ideology are known as Left parties while the Hindu nationalist parties such as the BJP and the Shiv Sena are referred to as Right-wing. This classification, even though partly true for some post-material attitudes,

[9] For the current definition, list and symbols, visit: http://eci.nic.in/ [Consulted 04/06/2019]

grossly ignores the economic dimension. Moreover, it is incapable of including other parties that do not fall "in between" them but "outside" of their continuum. Palshikar's (2004) classification of "ideological zones" seems a better typology which I slightly modify here given the contemporary scene. The Indian National Congress (INC) was once the dominant party of India and the forever big-tent that accommodates a plurality of views remain a sui generis zone. The first zone belongs to parties from the Hindi heartland that activated the social cleavage of "lower and backward castes" 1980s onwards and rely on the rhetoric of "social injustice." The second zone can be characterized as followers of state identity and interests and often invoke "regional pride." The third zone is occupied by the believers of Hindutva, an ideology of political Hinduism grounded in the glory of past, often invokes religious identity and fetishizes a Hindu India. There is yet a fourth zone of "Communists" who believe in multiple variants of communist ideology and are often fragmented and fighting within rather the adversary without. There are issue parties such as the AAP in Delhi which started out as a product of anti-graft movement in 2011 but is now losing its sheen. While most major players can be accommodated within this typology, there shall still be a few hundred parties left out which cannot be accommodated under any typology. An apt and succinct way to describe the regional party system is to say, "where policy and ideology take a backseat in electoral politics." (Ziegfeld 2016, 3)

In such a hyper-fragmented polity with 7 national parties and 52 state parties, more often than not, the assembly results give a fractured mandate in that no party gets a clear majority. In such a situation, the role of the state governor, an apolitical constitutional appointee of the president, becomes crucial. For an impartial functioning of the governor, Justice Sarkaria Commission of 1988[10] decided an order for extending an invitation to form a government which was upheld

[10] Later revised by Justice Punchhi Commission (2010)

by the Supreme Court in 2006.[11] Accordingly, the preference is (a) a pre-poll alliance (b) single largest party in the assembly (c) a post-poll alliance with all parties in government and (d) a post-poll alliance of minority government with external support.

Having outlined some facets and institutional determiners of state party systems in India, I would like to attend one more trend visible during the empirical research for the period 2000-2018 viz. the consolidation of political parties in India. In the last 15 years, there has been a steep decline in the number of independents (counted nationally) and the average number of parties represented in the state assemblies.

Table 1

| | '05 | '06 | '07 | '08 | '09 | '10 | '11 | '12 | '13 | '14 | '15 | '16 | '17 | '18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ind. | 205 | 206 | 203 | 192 | 171 | 160 | 130 | 119 | 125 | 99 | 96 | 98 | 89 | 78 |
| Avg. Parties | 7.4 | 7.6 | 7.27 | 6.8 | 6.9 | 6.77 | 6.43 | 6.33 | 6.33 | 6.17 | 6.1 | 5.83 | 5.77 | 5.9 |

Data for 30 assemblies excluding Telangana state formed in 2014.

While in 2005, 205 independents got elected in all assemblies put together, the number plummeted to 78 (nearly one-third) in 2018. Similarly, the average number of parties represented in an assembly came down from 7.4 to 5.9. The declining number of independents means that more representation (and power) is acquired by party labels. It also suggests that a lesser amount of dormant political power is lying outside of the party space which was earlier available to parties that missed the majority by a sliver of margin. In yet another implication, unless the parties do not want to go for repolling, they need to set aside their differences and pragmatically come up with coalition options. The Jammu and Kashmir assembly saw such a coalition of the BJP and the PDP, which according to the own party leaders was "a coalition of two polar opposites" (Economic Times 2018) and "a combination of oil and water." (India Today 2019)

Although this trend warrants additional examination, we can speculate four major reasons that operate independently or collectively resulting in such a decline. (a) On a positive note, the

[11] Rameshwar Prasad v. Union of India (2006) 2 SCC 1

faith of general electorate has increased over time in major parties and party leaders yielding an increasingly favorable vote share that translates into a higher number of seats. (b) Indian electorate is become increasingly strategic by not wasting their votes on independents and smaller parties who either cannot win or can win and still not influence the policy process. (c) Given that parties are allowed to spend indiscriminately during the elections (while caps on individual candidates), it becomes financially unviable for independents or smaller parties to match the splurge of major parties. (d) Finally, candidates, either independents or from minor political parties, with a longstanding reputation in their constituencies are co-opted by major players by offering portfolios and positions.

However, this consolidation does not mean stability has dawned on state party systems. It is true that the social cleavages existent within the Indian society have "saturated" its political utility (Yadav and Palshikar 2009, 38), Indian states are witnessing the emergence of issue-based parties. The successes of AAP and TRS which fought and won on the issues of corruption and statehood respectively and are now governing their states with comfortable majority demonstrate a viable scope for new entrants. Simultaneously, there are cases where national parties are trying to enter new regions where previously they were absent. The BJP is emerging as a principal contender in states such as West Bengal and Odisha. BJP's entry in West Bengal comes at the cost of Congress and the Left, the two weakest players. There is also a minor trend of factionalism. For example, the SDF in Sikkim was winning nearly 100% seats until a disgruntled faction moved on to form their own party, SKM, which immediately wrested one-third seats. There are however some regions such as Gujarat that are entirely immune from any flux or factionalism (albeit with some failed attempts) and has seen a stable two-party system for three-decades now. The regional variations warrant an examination of its own. What is important for our discussion is that a crude number indicating hypothetically equal-sized parties is perforce insufficient to encompass the variations noted here. We need a more

capacious indicator that essentially takes a snapshot of the assembly fragmentation, election after election, for an across-assembly and across-time variation of party politics in Indian states. The Indian state party system needs a bespoke solution, a yardstick developed for this distinct array of sub-national polities that can help us making sense of both fragmentation and flux.

## Section 5 – The new model

Typologies of party system that have emerged are mostly a postdictive exercise which observes patterns within a set of empirical data and try to systematize it. As Sartori (2005[1976] 108) notes, the enumeration and classification "criteria are postdictive, for there is no point in using them predictively." Most, if not, all attempts have concentrated on a rich array of comparative data from Europe and in some cases Africa and Latin America. My starting point for this exercise is Indian state elections that I have observed for very long and I am most familiar with. Because this is a model developed by theorizing on non-western empirics, scholars interested in extrapolating this model to continental Europe or other regions may need to further build upon the work done here. Before I move on to the actual model, let us visit the theoretical dimensions of it.

### 5.1 Theoretical underpinnings

Scholars of party-systems working on typology or enumeration may have emphasized various properties or characteristics that they wish to incorporate in their model.[12] Nonetheless, my concern here is to outline what is minimally desirable from such a model of classification or enumeration which refer to here as "minimal desiderata." To achieve that, I would first like to revisit Sartori for three important elements – premiss of defining party, "minimal definition" of a party, and the conception of party system – based on which we will deduce our minimal desiderata.

- The three premiss for defining party according to Sartori (2005, 22) are:
    1. Parties are not factions
    2. A party is a part of a whole
    3. Parties are channels of expression
- The "minimal definition" of a party is (Sartori (2005, 56)):

[12] For a near-exhaustive list of properties see Lane and Ersson (1987) Ch. 5

"A party is any political group identified by an official label that presents at elections, and is capable of placing through elections (free or non-free), candidates for public office."

- The conception of a party system for Sartori (2005, 23) is "a pluralistic whole" and the framework is "part-whole framework" (ibid., 58). For Sartori (ibid., 106), the objective of counting number of parties is to roughly indicate "the extent to which political power is fragmented and non-fragmented, dispersed or concentrated."

Based on this canonical pith, I derive the minimal desiderata[13] for any typology or enumeration scheme which I collectively refer to here as "party-system index":

- Minimal desiderata:

1. A party-system index should accurately reflect the entire configuration of parties indicating the fragmentation and dispersion of political power based on the governmental potential of individual components.
2. Such an attempt should portray the pluralistic whole without effacing any parts however limited their governmental relevance/potential.
3. Thus arrived index should functionally lend itself for a differential comparison, lateral or diachronic.

The first desideratum outlines what to minimally expect from such an index or simply, the goal of creating such an index. The term governmental relevance is defined by Sartori which I shall slightly modify later. The second desideratum demands fidelity towards the "part-whole framework" and takes objection to any attempts to amalgamate the whole configuration and remold it into "hypothetical equal-sized parties." If an index chooses to obliterate individual entities for a heuristic measure, it should not falter on decomposability. The second

[13] Scholars do not always lay out the prerequisite in this format of "minimal desiderata." However they do explicitly mention the desirable goals. For example, Pedersen (1980, 388) outlines "two central dimensions" – number of parties and distribution of party strength. For a more extensive set of methodological desirables, see Golosov (2016).

desideratum simultaneously stresses that any measure accounting for only cabinet or government and discounting the opposition is an inadequate heuristic too. Final desideratum states clear functional objective without which the whole exercise becomes a futile intellectual enterprise.

## 5.2 A note on ideological polarization

Ideological polarization is a crucial desideratum for Sartori to the extent that it becomes the secondary animator of his typology after fragmentation of power. As he describes, "The relevance of a party is a function not only of the relative distribution of power – as is obvious – but also, and especially, of its position value, that is, of its positioning along the left-right dimension." (Sartori 2005, 107) Nonetheless, as mentioned earlier, this attempt of theorizing is based on India where such polarization attribute is both dispensable and irrelevant when one observes the patterns in government formation and programmatic positioning of parties.

At the federal level, the INC and the BJP, which some identify as India's right-wing political party because of its religious nationalism ideology, are the two poles of governance that have alternated power either on their own or being the nucleus of a bigger coalition. Nonetheless, these parties have not been programmatically polarized in terms of economic, foreign or domestic or even "cultural" policies in a very extreme fashion. India's economic liberalization program was kickstarted by the INC in 1991 which the later BJP dispensation has carried out with much verve and vigor despite initial rhetoric of "*swadeshi*" or domestic protectionism. Similarly, while the BJP initially opposed the US-India nuclear deal, they operationalized the same with change in power. They have also continued, and one might say outspend, the INC in terms of welfare programs [for example MGNREGA]. The same goes for the INC. While in principle they oppose "cow policies"[14] of the BJP, they have more aggressively pursued the

[14] Cow has much religious in Hinduism and its political significance dates back to the time of British imperialism (Copland 2005). A politician or a party's position on cow slaughter can position them on a scale of Hindu-Muslim appeasing. By "cow policies," I mean a set of policies including cattle protection, punitive actions against unlicensed slaughter, legislation to blanket ban slaughter of cows while allowing other bovines, etc.

cow policies in states such as Gujarat and Madhya Pradesh where such a stance can reap huge electoral dividends. Nonetheless, it is entirely inconceivable to have a coalition between these two dominant poles of Indian politics.

At the state level, beyond the electoral presence of two national parties, there are state parties. In such multi-cornered contest, usually there is a "hung assembly" (fractured mandate) with no party reaching the majority mark. In terms of coalition politics, there seems to be hardly any taboo since the regional parties either consider themselves as representatives of some religion (SAD, SS), region (TRS, DMK), ethnic group (SP, BSP), or agenda (corruption – AAP). Therefore, one can notice many examples of opportunistic cross-alliances. For example, (1) NCP (Maharashtra) and TMC (West Bengal), both were breakaway factions from the INC, formed and operated on anti-Congress rhetoric for very long now entered into a coalition with the INC when faced rising popularity of the BJP. (2) BSP and SP, representing two warring ethnic cleavages and the undisputed rivals of Indian politics in UP (the largest state), formed an electoral alliance in the aftermath of 2014 general elections where the BJP swept their region. (3) Historically, the Swatantra party (1959-1974), the arch-Hindu right party, used to have a mutual understanding with the Communists in the southern state of Tamil Nadu when faced by a rival like the (then undivided) DMK, a Dravidian ethno-nationalist party. (4) The PDP and the NCP are the two major players in the Jammu and Kashmir region that have entered into coalition based on the electoral arithmetic of the state with both BJP and INC. (5) The JD(S), a self-identified socialist party has willingly played a second-fiddle role with the BJP and INC in Karnataka based on electoral exigencies. (6) It has also happened that two parties can have different dynamics in two different states at the same time. The INC and the CPIM (Communist) are the two poles in Kerala whereas they are on the same page in Tripura, West Bengal, and in the Upper House (Rajya Sabha). The list of such paradoxical alliance can go on.

Despite its theoretical and empirical limitations vastly documented (White 2010), the unidimensional framework serves an important function for most western democracies and thus took center-stage in Sartori's work [postdictive exercise]. As I have demonstrated absence or fickleness of ideology (for the self-professed parties) in the world's largest democracy, and assuming the same for many of its counterparts in the global south, I have not included "ideological polarization" in the minimal desiderata and put it on an optional menu with other properties. Succinctly, in the Sartorian "ideological-pragmatism" continuum for party-system types, India stands at the peripheral end of pragmatism. This position may hold for many other democracies such as Turkey and Japan as well as ethnically fragmented nations of Africa.

## 5.3 Governmental Potential

Having dispensed "ideological polarization," we agree with Sartori's first minimum "the strength of a party is its electoral strength." (ibid. 107) Based on this strength we estimate the governmental potential of three types of parties which I define as (1) natural parties of governance denoted by P (2) supporting parties denoted by S and (3) tail-ender[15] parties denoted by T.

Now let us address the issue of governmental potential. Governmental potential, as understood here, is a slight modification of Sartori's governmental relevance. Sartori (2005, 268) defines governmental relevance as "a party is governmentally relevant only when it actually governs, enters a government, or supports it at the vote of confidence by giving it that majority that the government demands for taking office." Nevertheless, immediately after that Sartori advocates discounting those parties that have never entered the government (some tail-ender hardly get this chance) or whose support is not necessary and has been rejected by the government. This, to me, is the violation of the "pluralistic whole" premise which I enshrined in the first desideratum "accurately reflect the entire configuration of parties." As every party has a vote

[15] This is a term from the game of cricket often used for the last, and often the weakest, batsman to come to the pitch for batting.

in legislative business, none can be discounted entirely. One can say that a one-seat party's governmental relevance is infinitesimally small, but it is surely not nil. Thus, I modify Sartori's definition of governmental relevance to governmental potential as: "the descending order of governmental potential is as follows: a party that *can govern*, that *can enter* a government, or *can support* it [government/coalition] at the vote of confidence by giving it that majority that the government demands for taking office."[16]

Based on the above discussion, a common definition of all three types of parties can be given as follows:

Natural party of governance [P]: A natural party of governance is the principal contender of power in a polity that either forms the majority government or can serve as the nucleus of a coalition government.

Supporting party [S]: A supporting party is the major contributor to the multiparty coalition formed by a "weaker P."

Tail-ender party [S]: A tail-ender party is the one that receives minimal electoral success yet can act as padding support to a coalition to reach the majority mark.

## 5.4 The Index

Since the index is supposed to take a snapshot of the whole parliament, it notes the number of P, S and T parties in the form of a tri-digit notation.

$I = N_p.N_s.N_t$

The three digits of the index each represents "number of actual parties" in each category as decided by their governmental potential. Except for the independent candidates who are not affiliated to any party, all seats of the parliament are covered in this exhaustive counting.

[16] At one point, Sartori (p.107-108) does agree to this: "What really weighs in the balance of multipartism is the extent to which a party may be needed as a coalition partner for one or more of the possible government majorities."

Hence, this is a complete portrayal of fragmentation or dispersion of power between all parties of a polity.

For example, the 2005 British General Election which threw a mandate like this 356-197-62-9-6-5-3-3-1-1-1-1-1 for n=646 and p=13 would be denoted by "2.1.10" that means this particular parliament has 2 natural parties of governance, 1 supporting party, and 10 tail-ender parties. Simply, this model is enumeration of number of parties in descending order of governmental potential. One thing I wish to reiterate again. The index I = 2.1.10 does not represent a particular government, it represents the entire British parliament (except the independents). The number 2 signifies that there are two parties that can alternate government on their own or can serve as a nucleus of a coalition. The number 1 in the middle represents that in case of a coalition government, there is one party that can play the supporting role to the natural party of governance. Eventually, there are 10 parties that can play a filler role.

## 5.5 Counting rules

When it comes to applying these rules and mapping them over real-world electoral data, there can be two approaches: intuitive counting rules [substantive] and arbitrary cut-offs [mechanical]. Let me start with the latter.

Let us invoke again the British General Election of 2005: 356-197-62-9-6-5-3-3-1-1-1-1-1. One can arbitrarily define a cut-off range for P as >30% seats, S between 5-30% seats and T as 5%<. Using this cut-off, then, the first two parties would be P, the third party would be the singular candidate for S, and the remaining 10 parties would be counted as T giving the following equation:

I = 2.1.10

We have discussed the limitations of such arbitrary cut-offs in the earlier section referring to empirical application such as Bogaards (2004). Let me emphasize the catch. Let us assume that based on our earlier observations, the cut-off for P was decided 35% for Britain. In that case,

it immediately disqualifies party #2 that received 197 seats making the configuration look like 1.2.10 which is intuitively less agreeable.

Mechanical cut-offs shall be more helpful for indices that operate on voting percentages. Since the primary unit of this model is parliamentary seats, it seems mechanical cut-offs would not serve as osmotic filters especially in a case like India where 30 states of varying sizes make the comparative palette. However, if a scholar's geographical region permits her to employ such arbitrary numbers with a very minor error, she can very well define and pursue it.

If a scholar defines to eschew the mechanical way of counting, the other way is to follow a set of rules and count manually. One can resent such an approach to be tedious, time-consuming, subjective, and requiring subject knowledge. My response to such criticism shall be following. If party-wise seat result is available, it is neither that exhausting nor supremely time-consuming. So far as subjectivity is concerned, proper counting rules can minimize the error on that front. Individualistic assessments are the norm in many such tabulation exercises with a reconciliation mechanism at some point in the process. If data is nefariously uneven only to distort results, it is better to use intuitive methods. One other advisable approach is after certain analysis, if a scholar is confident of a range for each category (for her region), they can justifiably use so albeit with the potential risk involved. Finally, benefitting from "regional experts" to assess a situation and quantify them is the new normal. For large-N qualitative scholars such interdependence and reliance over others is an acceptable practice.

Now, let me spell out the counting rules.

The primary concept of this model is to measure the dispersion of power between three types of parties and segregate them accordingly. Since we are dealing with only one indicator – the strength of political parties (as measured by seats), the first task is to ordinally arrange parties in descending order.

1. Ordinally arrange the parties in a descending sequence of parliamentary seats.

The fragmentation of power in a parliament depends on the power occupied by the first party. The first party's strength can determine the nature of party system – dominant, two-party or multi-party. If the first party gains a two-thirds majority, the role of other parties can be substantially limited in the parliament. If the first party is weaker, it will leave enough space for other parties to occupy power. Thus our estimation of party strength, and ensuing characterization party system, depends on identifying the strength of the first party.

Let the ordinal arrangement of a parliamentary constellation look like p1.p2.p3.p4.p5.

### Deciding P

There can be four possible scenarios regarding the strength of p1. As shown in the table below (which is elaborated upon later):

| Option | Strength of p1 | Majority scenarios |
|---|---|---|
| 1 | Extremely Strong | Overwhelming majority [2(p2) ± T] |
| 2 | Strong | Comfortable majority – reaching n/2 or crossing it with possibly a few more seats |
| 3 | Weak | Reaching majority with the help of T or independents<br>n/2 = p1 + T/I |
| 4 | Extremely Weak | Reaching majority with the help of S or ST<br>n/2 = p1 + S + T/I |

The first option is a special type of majority and its significance will be accounted when we move to party system types. Although in the index we do not differentiate the strength of P, this exercise is necessary to gauge the strength of remaining players. P is "extremely strong" when it enjoys an overwhelming majority as defined below.

Overwhelming majority and its calculation: An overwhelming majority can be defined as (a) a party is crossing the half-way mark as well as (b) scoring twice the number of seats compared to second adjacent party in the ordinal arrangement. As the ordinally first party enjoys this majority in relation to the second party, we can define this relationship mathematically as 2(p2) ± T. However we do not wish to remain rigid in the calculation, so we add the flexibility element of plus or minus T. I shall like to stress the flexibility associated with "plus or minus

T." Let us take examples of Gujarat 2002[17] and Gujarat 2007 (both n=182). Gujarat 2002 assembly fragmentation was 127(BJP)-51(INC)-2(JDU)-2(Ind.) and Gujarat 2007 assembly fragmentation was 117(BJP)-59(INC)-3(NCP)-1(JDU)-2(Ind.). For 2002, the BJP surely enjoys overwhelming majority as it breaches half-way mark as well as it is twice or more (127) compared to its immediate neighbor INC (51). In 2007, however it is one short of this "twice or more" condition which it can fulfill with JDU (1) or an independent.

The second option is of a simple majority where p1 crosses the majority with a few seats more. These additional seats work as an insurance against any defections.

Only one party can cross the majority mark (n/2) in actuality. This party will be the natural party of governance. For options (1) and (2), the party p1 shall be accorded the status of P as stated in Rule #2. Even if the first party is not breaching the majority mark [options (3)], it could fill the gap with a tail-ender party and still deserves the status of P.

2. Any party that crosses the majority mark should be denoted as P. If a party fails to reach the majority mark but can fill the gap with independents or tail-ender parties, it shall also be counted as P.

In a case where P is extremely weak [option (4)], it can still function as a nucleus of a larger coalition. This is even truer for countries were ordinal primacy is an institutional factor (the concept of inviting the largest party to form government). Hence, by virtues of presiding over the coalition government, the weaker p1 shall be accorded the status of P.

3. If a party fails for #2 yet it is ordinally ahead of all other parties with similar insufficiency and thus can functionally serve as the nucleus of a larger coalition, it should still be counted as P.

Succinctly, in all four scenarios, p1 would be accorded the status of P by virtue of its numerical strength even if it does not form government in a real-life scenario.

[17] All the examples quoted hereafter are accessible from the Appendix 1.

Based on #2 and #3, there can be more than one P, and when, P1P2 alliance is an impossibility due to ideological, ascriptive, or historical reasons, both those parties remain as two natural poles of governance. This is particularly true for a two-party system. Let us take two different examples. Delhi 2013 (n=70) assembly with a half-way mark of 35 looked like this: 31(BJP)-28(AAP)-8(INC)-1(JDU)-1(SAD)-1(Ind.). Both the BJP(31) and AAP(28) shall be denoted as P as either can form a government with the help of INC(8). Given the "can" factor in our definition of governmental potential, we are indifferent to the fact that BJP and INC are the principal adversaries in the federal government and their alliance in a state is nearly impossible. In the second example, Chhattisgarh 2013 (n=90) assembly makeup with majority mark of 45 looks like this: 49(BJP)-39(INC)-1(BSP)-1(Ind.). Here the BJP should obviously be defined as P as it 4 more than the majority mark. Additionally, the INC as a "principal contender" shall also be accorded as the status of P. Mathematically, only one of them can breach the majority mark. Nonetheless, the rest of the power is not fragmented further and remains with the principal contender. This variation in result can be due to disproportionate results produced by FPTP. If we look at the popular vote, the BJP polled 41.04% while the INC 40.29%. Merely a 1% swing can change the fortune. In other measures such as organizational strength or ability to raise funds, both parties should fare more or less the same. In such a neck to neck competition, a few legislators crossing the aisle can destabilize the government. There is a majority, however a thin one. Also, our counting rules operate under the framework of governmental potential defined by "can." Hence, despite being slightly away from the majority mark, the principal contender shall also be accorded the status of P.

The concept of "principal contender" shall not be true when the remaining power is fragmented further. For example, Karnataka 2013 (n=224) assembly with majority mark of 112 saw a verdict like this: 122(INC)-40(BJP)-40(JDS)-6(KJP)-1(SP)-1(KMP)-1(KSP)-9(Ind.). The INC with 122 seats is safely a P. However, the remaining power is fragmented between BJP, JDS,

4 other smaller parties and 9 independents. Thus neither the BJP nor the JDS are principal contenders nor independently a threat to the majority of the INC. Let us now move to rules of determining other types of parties.

### Differentiating S and T

The relative strength of S or T depends on the strength of P and its alliance needs. Before we move on, let us go through two important propositions for coalition building.

When the first party does not reach the majority mark, it needs to form a coalition. At this stage, we need to consult the scholarship dealing with coalition formation which is primarily divided into policy-seeking and office-seeking (Keman 2006, 164). Office-seeking is integral to policy-seeking in that one needs numbers to occupy office and execute policies; however, ideological or programmatic proclivities overtake the mere addition of numbers in the case of policy-seeking. In other words, for policy-seeking, policy drives numbers, and for office-seeking, number drives policy. Since the "ideological zones" that we described earlier are not mutually antagonistic, it is easy for parties in Indian states to form a coalition with each other. A national party can work with a regional party, a party that got votes on the plank of social justice can work with a party seeking statehood, and so on. The only exception is the extreme ideologies such as Hindu nationalists and Communists cannot work together. That such a situation has not occurred thus far, we can dispense with ideology-based "policy-seeking" theories of coalition formation.

Coming to the number-oriented theories of "policy seeking," there are four approaches as discussed by Lijphart (1994, 93) – (a) winning coalition (b) minimal winning coalition (c) minimum seats and (d) minimum parties. The winning coalition theory gives many equiprobable outcomes that has little utility here. Moreover, the institutional factors outlined earlier sets out the primacy of the strongest player against the numerous equiprobable outcomes. From the remaining theories, two crucial propositions are derived for our purpose:

If a party [or a coalition] falling short of majority has to find a coalition partner,

a) Only minimum number of required players [parties] would be admitted to the coalition, and

b) The weakest of all remaining members would be preferred first [because of their least "bargaining potential"].

The understanding behind the first point is that political parties would like to share the spoils of office or cabinet membership with as less members as possible. In a case of multiple such options available, the government-forming party would like to have a weakest possible ally with least "bargaining power." In a less cynical view of politics, the minimal yet stable coalition allows political parties to follow their programs and policies promised during the polls. A stronger coalition partner that has to cater the needs of an entirely different constituency of voters or has a relatively different programmatic commitments can weaken the first party's agenda in governance.

These two propositions differentiate the coalition strategies of a "weak" and an "extremely weak" P. A weak P would be the one that would be able to reach the majority mark with the help of tail-ender parties or independents that are ordinally located at the tail-end. In contrast, an extremely weak P would require to look for support in its proximity [or its immediate shadow] rather than the tail-end [left-most side in an ordinal arrangement]. Please refer to the ordinal arrangement (in the table) below for understanding of ordinal location.

Let us take an example to understand the coalition preference of a unidimensional ordinal arrangement taking example of Bihar 2015 (n=243) with halfway mark of 122.

| Extremely Weak Ps | | Proximity/ Shadow of P | | Tail-ender Parties | | | | Independents | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RJD | JDU | BJP | INC | CPIMLL | LJP | RLSP | HAMS | Ind. | Ind. | Ind. | Ind. |
| 80 | 71 | 53 | 27 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| P | P | S | S | T | T | T | T | I | I | I | I |

The RJD is obviously the P based on #3. The principal contender here JDU can also serve as a nucleus of a larger coalition if the BJP chooses to support it. However, the BJP cannot form a

coalition of its own. The calculation here works on the assumption of ordinal primacy in that a weaker party supports a stronger party and not the other way around. So if the BJP wants to form a coalition government, it needs to look to its left. Assuming for a moment that all parties and independents decide to support the BJP, the tally of the hefty coalition would be 92 which shall still be 30 short of the half-way mark. Hence both the BJP and the INC are disqualified from #2 and #3 but they can make the two Ps – RJD and JDU – reach the half-way mark or in its near vicinity. Near vicinity is a gap that can be filled by tail-ender parties. Thus, both these parties become S for our consideration. While the other parties from CPIMLL can only do is to support a PS combination. Ideally, P would first look towards the left-most side. In this case, even if it adds all four tail-ender parties and all four independents declare their support, RJD cannot reach the half-way mark. Also, a coalition of minimum number of players would be preferable. Thus, the fragmentation of Bihar 2003 assembly can be denoted as:

I = 2.2.4 OR I = 2.2.4.4 (independents included)

The point of this discussion here was to differentiate between S and T as both seem to appear playing the same role of "helping P breach the majority mark." The three major differences are (1) S is located in the proximity of P in ordinal arrangement while T is farther (2) T is electorally marginal while S is not (3) S helps P cover a substantial gap which T cannot. The last point can alternatively be phrased this way: an S by entering into a coalition can increase the strength of an extremely weak P (option 4) to weak (option 3) or strong P (option 2) which a T cannot.

Before we move one, I would like to highlight a fact that we shall keep on discussing intermittently. Although we heavily borrow from the patterns of interaction between parties in Indian states, there are some empirical possibilities that we are omitting. This model cannot accommodate historical faultlines, past coalition experiences, federal coalition compulsion, and so on. For example, if the BJP and the JDU are in a coalition in the federal government,

they will possibly come together in the state of Bihar. If, for example, the RJD and the INC had a bitter experience in the past, they will avoid coming together. Hence, we are not defining this model at the lowest level of empirical politics, but a slightly abstract level of "governmental potential" where "can" place an important role.

### Defining S

Based on our discussion earlier, we can define S as:

4. A party that disqualifies for #2, and also for #3 because it is numerically weaker (and thus, ordinally behind), but can support an *extremely weak P* to breach the majority mark or catapult it to near vicinity of that mark should be counted as a supporting party.

Near vicinity in the above rule can be defined as a gap that can be fulfilled by tail-ender parties located on the left-most part of a descending ordinal arrangement.

There are two empirical aberrations that I need to address here. (1) Sometimes a party P is unwilling to form a government because of lack of numbers or some other reasons and allows a party S to form a minority government that is externally supported by P. In such a situation, P is not acting as a functional nucleus of the working coalition. While this is an unconventional situation, it does not alter our calculation rules. For one, this is not a model reflecting merely the snapshot of the government. Second, by not choosing the driving seat, a party's "governmental potential" does not change. Hence, an index designed to "enumerate all parties based on their governmental potential" should count them ordinally as such. (2) In some occasional cases, P and S come together to form a government, but S has choice to select between two Ps [P2S1 triangular contest]. In such a situation, S asks for the seat of Chief Minister (state analog of a prime minister). This is not a case of minority government, yet P is not in the driving seat. The explanation for the previous aberration is also applicable here.

There are two more cases where a party should be assigned the category S. In the case when P is "extremely strong," the second party p2 [that is used to measure "twice the strength" shall be used] should be assigned as S. Taking the example of Gujarat 2002 [127(BJP)-51(INC)-

2(JDU)-2(Ind.)], the INC is half the strength of the BJP. While in actuality there is no other option for the INC to support as a "supporting party," it still has a strength equivalent to such a party in a comparative sense. Moreover, it cannot be entirely discounted. If someone is going to bounce back and eat the BJP's vote share at some point, it would be INC. As assumed, it happened in 2017 where the INC and the BJP came neck to neck both in terms of vote share and seats.

The second is a case where there is a strong P and the remaining power is further divided between two roughly equal players. Let us again take the example of Karnataka 2013 (n=224) 122(INC)-40(BJP)-40(JDS)-6(KJP)-1(SP)-1(KMP)-1(KSP)-9(Ind.), where majority mark is 112. With a strong P, here the INC, the remaining power is divided between two players. As I said earlier, even though there is no actual need for an alliance, in terms of possibility, they can play a role of supporting party. Together these two parties between themselves command roughly 35% seats.

In both the above-mentioned cases, the "can" factor is decisive. The earlier discussion of governmental potential (in the last section) shall be crucial for any clarification.

### Defining T

There are two ways of defining T. The first is the functional definition which shall count most if not all tail-ender parties.

5. A numerically marginal party that disqualifies for P or S but can support a P or a PS coalition struggling at near vicinity of the majority mark to reach that point should be termed as a tail-ender party.

However, in some cases, the functional definition shall fall short of including all tail-ender parties. Our objective, remember, is to gain a complete snapshot of the system. Thus, we intend to include all the parties whose mere presence is there in the house.

6. Any party with mere presence, even by a single seat in the parliament, should be included as T.

Let me recapitulate the rules:

1. Ordinally arrange the parties in a descending sequence of parliamentary seats.
2. Any party that crosses the majority mark should be denoted as P. If a party fails to reach the majority mark but can fill the gap with independents or tail-ender parties, it shall also be counted as P.
3. If a party fails for #2 yet it is ordinally ahead of all other parties with similar insufficiency and thus can functionally serve as the nucleus of a larger coalition, it should still be counted as P.
4. A party that disqualifies for #2, and also for #3 because it is numerically weaker (and thus, ordinally behind), but can support an *extremely weak P* to breach the majority mark or catapult it to near vicinity of that mark should be counted as a supporting party.
5. A numerically marginal party that disqualifies for P or S but can support a P or a PS coalition struggling at near vicinity of the majority mark to reach that point should be termed as a tail-ender party.
6. Any party with mere presence, even by a single seat in the parliament, should be included as T.

These counting rules are applied to 116 Indian state elections occurred between 2000-2018 and the resulting data set is appended to the main body of this thesis.

## Section 6 – Typology

The primary objective of any counting method is the enumeration of major/significant/relevant parties, however they are defined, within a set of all parties that reach the parliament to understand the nature of fragmentation of power. Unless this eventual objective of separating relevant from irrelevant is not achieved, the process does not conclude logically. The ability of any counting method to precisely lent the output for such classification with precision is one of the markers of its success. After segregation of parties through the osmotic method, our next step should be of counting relevant players, noting modes of interaction between them, and assigning labels to particular interaction/fragmentation.

Let us discuss our case first theoretically. We define relevant parties as the parties that mutually exhaust within themselves the *possible* permutations of government formation which means a government cannot be formed without their support or they are the main players. Before we go any further, let us revisit the three parties and their governmental potential: (a) the natural party of governance forms the government or serves as the nucleus of a larger coalition (b) the supporting party (S) enters the government by supporting a weaker P (c) the tail-ender party (T) can act as a padding support. Based on this classification, only P and S are accorded the status of relevance as real permutations of government formation happen within them. We are entirely discounting Ts from this process. There are sociological, political, and empirical reasons for it as it is observed in the case of India. Sociologically, these parties have their followers in a singular seat or a smaller pocket. Beyond the demands of their followers limited to a region they do not have a wider constituency to cater leaving them without an ambitious policy program. Politically, if they do not agree to join the coalition, similar support can be brought in by independents or similar other smaller parties in most cases. Also, usually these parties do not have a strong ideology and tend to support a winning coalition at least in the case of India. Empirically, in my study of Indian politics, more often than not these parties are more eager to support the coalition and get their piece of office spoils. I would like to emphasize a

crucial point here. We are least interested in the nature of deals and parleys that go on between the tail-ender parties and the coalition. It depends on how far the coalition is from the majority mark and what is the actual strength of the tail-ender party. Government formation is understood as a process of forming a government to execute a certain set of policies. Given the kind of minuscule electoral success these parties enjoy, they would not harbor wider ambitions. There may be cases where tail-ender parties can have an agenda as well as the numeric veto power, but as Sartori, who introduced the idea of "blackmail potential," confesses that such an examination would be a laborious exercise with much required subject knowledge.

In the case of India, I have not come across a case where such a tail-ender party because of its anti-system or ideological proclivity recused from the government leading to re-election. There can be discontent over time about ministerial berth which is a practical issue of give and take. Even in cases when a P and an S come together who belong to two different ideological blocks, we see the creation of a Common Minimum Program (CMP) that keeps contentious issues aside from governance agenda considering the longevity of government in mind. In conclusion, the role of tail-ender parties in reaching floor majority can be vital, but they are still not a relevant force to reckon with. Hence if we need to understand patterns of interaction and define the nature of polity, only the study of P and S shall be sufficient.

At an operational level, based on the earlier discussion, number of P and S *matters*. We define each of these parties as "corners" of the polity. Between these corners, we see different patterns of interaction and based on that the following typology is offered. I would like to highlight one more point. When a scholar attempts to determine a party-system type, some time element is introduced as a rider. So, if a party system continues a certain pattern of interaction for 20 years or for 5 consecutive elections, the nature of polity should be defined as such. This aspect is not pursued here for the reason that this typology is for demonstration of success of our counting method. Thus, this supplementary exercise produces a locational or static snapshot of

fragmentation without dealing with the time variable. However, the exercise in itself is capacious enough to discriminate diachronic changes. I have enlisted this sensitivity as an essential benefit in the subsequent chapter and commented upon it in much detail.

As a postdictive exercise, five major patterns of interaction between major players are observed in India. These cases are extensive and mutually exhaustive.

Case 1) Unipolar polity: Unipolar polity is a case where P is extremely strong and enjoys an overwhelming majority (both ideas discussed earlier). In most cases, there is a strong competitor (usually S) who serves as the principal opposition and enjoys decent popularity. Nevertheless, this opposition is hardly able to impediment the government's programs or policies. Their message is heard by a significant part of the population which is unfortunately not translated to votes or perhaps seats. In terms of our index, there is usually one P and one S with or without the presence of tail-ender parties or independents. There are parallels with dominant party system in other classifications. The index can be denoted as: P1S1. Examples: Gujarat 2002, Tripura 2003

Case 2) Two cornered polity: In such a case, two parties alternate power between them. This is very similar to two party system in other classifications. Both parties tend to enjoy nearly similar popularity and the difference of vote share is also not very huge. The usual swings can be due to the disproportionality FPTP produces. There is no S in the system. There can be some independents or tail-ender parties. The index can be denoted as P2S0. Examples: Gujarat 2017, Chhattisgarh 2003.

Case 3) Three cornered polity: This type of cases involves two natural parties and one supporting party. Two types of electoral outcomes are likely. In one scenario, one of the natural parties obtains majority on its own which paves the way for new government. In another scenario, neither of the two natural parties reach the majority mark. The support party's role becomes crucial in this situation. It can side with either party based on several considerations.

Karnataka is a typical case. The support party there, the JDU, has swung both ways in the last 15 years based on the electoral outcome and many other variables. This situation is very similar to two-and-a-half party system in other classifications. The index can be denoted as P2S1. Examples: Karnataka 2008, Delhi 2013

Case 4) Four cornered polity: This type of case represents slightly more fragmented polity. There are two natural parties and two state parties. The index can be represented as P2S2. This is similar to moderate pluralism or multipartism of other classifications. There are two possible styles of permutations within such cases. (1) There is some ideological or historical affinity between one natural party and one supporting party making them a stable coalition. Thus, one PS coalition fights another PS coalition, and they remain fairly stable over time. Maharashtra 2009 and Tamil Nadu 2011 are two examples of such fragmentation with of history of fairly stable electoral alliance. (2) There can also be a case of lack of coalitional consistency. Thus, all four permutations P1S1 P1S2 P2S1 P2S2 are possible based on the electoral outcome. Example: Jammu and Kashmir.

Case 5) Multi-cornered polity: This type of polity has more than four major players. This is a case similar to extreme multipartism in other classifications. We are still expecting two parties to play the important role as a nucleus of a multiparty coalition. Thus the possible index can be P2SnTn. We have not yet come across a case of P3 yet; nevertheless, its theoretical possibility cannot be denied. The largest state in India, Uttar Pradesh, with 403 assembly seats have noted this kind of fragmentation. In multiethnic societies or proportional systems, the same is possible.

## Section 7 – Benefits and limitations

Thus far in this thesis, we have noted the shortcomings of models developed so far, mooted a new model, and demonstrated its empirical application. In this section, we shall briefly outline some of its benefits over other counterparts and some limitations for potential future research.

Benefits:

1) First and foremost, this model has consistently been grounded in theoretical rationale from conception to counting. There are neither heuristic measurements nor arbitrary cut-offs. The three types of parties based on their electoral strengths are conceived as unitary blocks of the system. Different forms of party system are understood as varied compositions of these units. The empirical application in terms of typology is also adduced with necessary logic that is consistent with the overall theoretical framework.
2) Unlike mathematical indices or other parallel approaches, no party is effaced, and complete fragmentation of parliament is accounted for. The segregation of relevant and irrelevant is done at a later stage. Since each party now gets a position based on its governmental potential – as a P, S, or T, comparison of individual component strength across time and space is possible. Thus, if a sub-region of 10 states is taken as an entity, in how many of them a particular party is a natural party, supporting party, and tail-ender party can be immediately accounted for and the changes can be used to understand the rise or fall of a particular party. A similar comparison of voting percentage or assembly sit has little to offer comparatively.
3) The governmental potential as a concept was discussed in coalition theories but was never applied to counting rules. Now that parallax has been resolved. The electoral (or parliamentary) strength is now being normalized and converted to governmental potential through robust counting rules.
4) Aspects of stability, closure, and disruption are immediately visible through the index. For example, Maharashtra has been consistently a four cornered polity with a 2.2.x index

showing more or less stability in the party system. There can be volatility of votes or seats among these four major players. However, closure is indicative. Come to Delhi, 2003 and 2008 were two cornered polities with I = 1.1.2. 2013 changed the balance with I = 2.1.2 which later altered to I = 1.0.1 in 2015. When these four constellations are put together – 1.1.2 (2003), 1.1.2 (2008), 2.1.2 (2013), 1.0.1 (2015) – the sense of instability and disruption are immediately conveyed.

5) While achieving other goals, we have not entirely given up on the statistical appeal if the party system type has to be counted as a variable. The index in itself is a fraction that cannot be immediately used as a variable. Nonetheless, the extensive and mutually exhaustive classification leading to categorical observation makes it useful in other forms of research inquiries.
6) The Index created by counting all the parties carries a detailed texture that is sensitive to all changes and carries a real "fine-print" of the party system. For example, in the example of stability in Maharashtra – 2.2.7 (2004), 2.2.10 (2009), 2.2.8 (2014) – even if there are no changes in the overall nature of the polity, the rise and fall of tail-ender parties is immediately visible. In one more cross-polity example, let us take two unipolar polities – Delhi 2015 (1.0.1) and Assam 2001 (1.1.6). More than the dominance of the first parties captured by the label of unipolar, the further fragmentation is also immediately visible when one notices the next two numbers. This detail is lost, for example, say when we compare two dominant party systems with 1.07 and 1.23 ENP respectively.
7) The simple categorical output lends itself for intuitive graphical analysis.

Having noted some major benefits of the system, let me point out three limitations or avenues for further modification of this model. I have addressed the procedural issues earlier most satisfactorily in Section 5.5 which I am not repeating again.

First, the counting of parties is based solely on their electoral strength. The whole enterprise is "color blind" in the words of Pederson (1980) in that the ideological dimension is entirely absent. This neglect is strategic as it suits most regions and the index stays simple. Nevertheless, if a scholar so requires including the ideological dimensions, the parties can be counted using the rules and then can be segregated at the second stage based on their ideological proclivity. Second the change is agent blind which means that in the fragmentation if a party is supplanted by another party of similar strength, the index will remain stable. This is a high bar of desirable goal and most indices will falter on it. Third, one of the desirable goals should be an accompanying computational algorithm that can enumerate the parties based on these rules which is a scope for people with such expertise to address. The logic is clearly stated in the counting rules which needs to be machine translated. If such a feat is achieved, this model can reach much farther than this author has expected.

## Section 8 – Conclusion

The fascination with the number of parties in a system continue to animate many scholarly debates. In the last decade, three mathematical formulae have been mooted which testifies the continuation of the debate. The primary intent behind this project was to steer the state of scholarship from reductionist indices to analytical counting. I personally felt the urge to bring theory to the centerstage as the mechanical methods were overpowering the state of discipline. While I am not sure of the external validity of this project to other regions, I hope this thesis would rekindle the pertinence of theoretical reasoning and necessity of accuracy in the process of counting. In the subsequent form, if this thesis is able to prod the state of the discipline on these two issues, a substantial contribution would have been made in my opinion.

In another first, this thesis has proven that the entire *embarras de richesse* of realpolitik can be deconstructed in terms of three unitary blocs – three types of parties, without losing the sense of diversity and arrangement. We have moved from merely counting to counting with conception. This particular step of conceiving the coexistence of parties made up of only three types brings to logical conclusion what Maurice Duverger started in 1954, what Sartori pursued in 1976, and remained a quest in itself until now. The empirical demonstration in terms of typology and coding both further demonstrates the viability of the method in general and the counting rules in particular. Having said that, I acknowledge the diverse needs of other regions and at various points I have alluded the scope of improvements if this project has to travel to various regions of the world.

All scholars from both camps have strove for one thing – to refine our understanding of fragmentation of power that ensures better comparability of democratic systems. This project is one step ahead in the direction of refining that method. The better tools we as comparativists are equipped with, more reliable shall be our analysis. I hope this project will be an important addition to means and methods of investigation at our disposal.

# Appendix 1

| Sr | Election | N[18] | Ordinal sequence[19] | Ordinal sequence (w/Pnames)[20] | Index | Type of polity |
|---|---|---|---|---|---|---|
| 1 | Gujarat 2002 (182) | 3 | 127-51-2 | 127(BJP)-51(INC)-2(JDU)-2(Ind.) | 1.1.1 | Unipolar |
| | Gujarat 2007 (182) | 4 | 117-59-3-1 | 117(BJP)-59(INC)-3(NCP)-1(JDU)-2(Ind.) | 1.1.2 | Unipolar |
| | Gujarat 2012 (182) | 5 | 115-61-2-2-1 | 115(BJP)-61(INC)-2(NCP)-2(GPP)-1(JDU)-1(Ind.) | 1.1.3 | Unipolar |
| | Gujarat 2017 (182) | 4 | 99-77-2-1 | 99(BJP)-77(INC)-2(BTP)-1(NCP)-3(Ind.) | 2.0.2 | Two cornered |
| 2 | Karnataka 2004 (224) | 8 | 79-65-58-5-1-1-1-1 | 79(BJP)-65(INC)-58(JDS)-5(JDU)-1(CPM)-1(KCVP)-1(KNDP)-1(RPI)-13(Ind.) | 2.1.5 | Three cornered |
| | Karnataka 2008 (224) | 3 | 110-80-28 | 110(BJP)-80(INC)-28(JDS)-6(Ind.) | 2.1.0 | Three cornered |
| | Karnataka 2013 (224) | 7 | 122-40-40-6-1-1-1 | 122(INC)-40(BJP)-40(JDS)-6(KJP)-1(SP)-1(KMP)-1(KSP)-9(Ind.) | 1.2.4 | Three cornered |
| | Karnataka 2018 (224) | 5 | 104-78-37-1-1 | 104(BJP)-78(INC)-37(JDS)-1(BSP)-1(KPJP)-1(Ind.) | 2.1.2 | Three cornered |
| 3 | Maharashtra 2004 (288) | 11 | 71-68-62-54-4-3-2-1-1-1-1 | 71(NCP)-69(INC)-62(SHS)-54(BJP)-4(JSS)-3(CPM)-2(PWPI)-1(ABHS)-1(BBM)-1(RPIA)-1(STBP)-19(Ind.) | 2.2.7 | Four cornered |
| | Maharashtra 2009 (288) | 14 | 82-62-46-44-13-4-4-2-2-1-1-1-1-1 | 82(INC)-62(NCP)-46(BJP)-44(SHS)-13(MNS)-4(SP)-4(PWPI)-2(BVA)-2(JSS)-1(CPM)-1(BBM)-1(LKSGM)-1(SWP)-1(RSPS)-24(Ind.) | 2.2.10 | Four cornered |
| | Maharashtra 2014 (288) | 12 | 122-63-42-41-3-3-2-1-1-1-1-1 | 122(BJP)-63(SHS)-42(INC)-41(NCP)-3(PWPI)-3(BVA)-2(AIMIM)-1(CPM)-1(SP)-1(BBM)-1(MNS)-1(RSP)-7(Ind.) | 2.2.8 | Four cornered |
| 4 | Tripura 2003 (60) | 5 | 38-13-6-2-1 | 38(CPM)-13(INC)-6(INPT)-2(RSP)-1(CPI) | 1.1.3 | Unipolar |
| | Tripura 2008 (60) | 5 | 46-10-2-1-1 | 46(CPM)-10(INC)-2(RSP)-1(INPT)-1(CPI) | 1.1.3 | Unipolar |
| | Tripura 2013 (60) | 3 | 49-10-1 | 49(CPM)-10(INC)-1(CPI) | 1.1.1 | Unipolar |
| | Tripura 2018 (60) | 3 | 35-16-8 | 35(BJP)-16(CPM)-8(IPFT) | 1.1.1 | Unipolar |
| 5 | Delhi 2003 (70) | 4 | 47-20-1-1 | 47(INC)-20(BJP)-1(NCP)-1(JDS)-1(Ind.) | 1.1.2 | Two cornered |
| | Delhi 2008 (70) | 4 | 43-23-2-1 | 43(INC)-23(BJP)-2(BSP)-1(LJP)-1(Ind.) | 1.1.2 | Two cornered |
| | Delhi 2013 (70) | 5 | 31-28-8-1-1 | 31(BJP)-28(AAP)-8(INC)-1(JDU)-1(SAD)-1(Ind.) | 2.1.2 | Three cornered |
| | Delhi 2015 (70) | 2 | 67-3 | 67(AAP)-3(BJP) | 1.0.1 | Unipolar |
| 6 | Chhattisgarh 2003 (90) | 4 | 50-37-2-1 | 50(BJP)-37(INC)-2(BSP)-1(NCP) | 2.0.2 | Two cornered |



[18] Total number of parties having representation in the assembly

[19] Independents excluded

[20] Ind. = Independents. Party abbreviations are the same as used by the Election Commission of India. Please refer the original election result files for each state for their full names. Each party as a unique abbreviation. Hence, the same abbreviation in different states means the same party. For the sake of brevity, full party names are not reproduced here.

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|---|---|---|---|---|---|---|
| | Chhattisgarh 2008 (90) | 3 | 50-38-2 | 50(BJP)-38(INC)-2(BSP) | 2.0.1 | Two cornered |
| | Chhattisgarh 2013 (90) | 3 | 49-39-1 | 49(BJP)-39(INC)-1(BSP)-1(Ind.) | 2.0.1 | Two cornered |
| | Chhattisgarh 2018 (90) | 4 | 68-15-5-2 | 68(INC)-15(BJP)-5(JCPJ)-2(BSP) | 1.1.2 | Unipolar |
| 7 | Assam 2001 (126) | 8 | 71-20-8-3-2-1-1-1 | 71(INC)-20(AGP)-8(BJP)-3(NCP)-2(ASDCU)-1(AITC)-1(SAP)-1(SP)-19(Ind.) | 1.1.6 | Unipolar |
| | Assam 2006 (126) | 10 | 53-24-10-10-2-1-1-1-1-1 | 53(INC)-24(AGP)-10(BJP)-10(AIUDF)-2(CPIM)-1(CPI)-1(NCP)-1(AGPP)-1(ASDC)-1(LKS)-22(Ind.) | 2.2.6 | Four cornered |
| | Assam 2011 (126) | 6 | 78-18-12-10-5-1 | 78(INC)-18(AIUDF)-12(BOPF)-10(AGP)-5(BJP)-1(AITC)-2(Ind.) | 1.3.2 | Unipolar |
| | Assam 2016 (126) | 5 | 60-26-14-13-12 | 60(BJP)-26(INC)-14(AGP)-13(AIUDF)-12(BOPF)-1(Ind.) | 1.4.0 | Multi cornered |
| 8 | Andhra Pradesh 2004 (294) | 10 | 185-47-26-9-6-4-2-2-1-1 | 185(INC)-47(TDP)-26(TRS)-9(CPM)-6(CPI)-4(AIMIM)-2(BJP)-2(JP)-1(SP)-1(BSP)-11(Ind.) | 1.2.7 | Three cornered |
| | Andhra Pradesh 2009 (294) | 9 | 156-92-18-10-7-4-2-1-1 | 156(INC)-92(TDP)-18(PRP)-10(TRS)-7(AIMIM)-4(CPI)-2(BJP)-1(CPM)-1(LSP)-3(Ind.) | 2.2.5 | Four cornered |
| | Andhra Pradesh 2014 (293/294) | 10 | 116-70-63-21-9-7-2-1-1-1 | 116(TDP)-70(YSRCP)-63(TRS)-21(INC)-9(BJP)-7(AIMIM)-2(BSP)-1(CPM)-1(CPI)-1(NP)-2(Ind.) | 2.2.6 | Four cornered |
| 9 | Arunachal Pradesh 2004 (60) | 4 | 34-9-2-2 | 34(INC)-9(BJP)-2(NCP)-2(AC)-13(Ind.) | 1.1.2 | Unipolar |
| | Arunachal Pradesh 2009 (60) | 5 | 42-5-5-4-3 | 42(INC)-5(NCP)-5(AITC)-4(PPA)-3(BJP)-1(Ind.) | 1.0.4 | Unipolar |
| | Arunachal Pradesh 2014 (60) | 3 | 42-11-5 | 42(INC)-11(BJP)-5(PPA)-2(Ind.) | 1.1.1 | Unipolar |
| 10 | Bihar 2000 (324) | 13 | 124-67-34-23-21-12-6-5-5-2-2-2-2-1 | 124(RJD)-67(BJP)-34(SAP)-23(INC)-21(JDU)-12(JMM)-6(CPIMLL)-5(BSP)-5(CPI)-2(CPM)-2(UGDP)-2(KSP)-1(MCO)-20(Ind.) | 2.3.8 | Multi cornered |
| | Bihar 2005 (243) | 11 | 75-55-37-29-10-7-4-3-3-2-1 | 75(RJD)-55(JDU)-37(BJP)-29(LJP)-10(INC)-7(CPIMLL)-4(SP)-3(CPI)-3(NCP)-2(BSP)-1(CPM)-17(Ind.) | 2.2.7 | Four cornered |
| | Bihar 2010 (243) | 7 | 115-91-22-4-3-1-1 | 115(JDU)-91(BJP)-22(RJD)-4(INC)-3(LJP)-1(CPI)-1(JMM)-6(Ind.) | 2.1.4 | Three cornered |
| | Bihar 2015 (243) | 8 | 80-71-53-27-3-2-2-1 | 80(RJD)-71(JDU)-53(BJP)-27(INC)-3(CPIMLL)-2(LJP)-2(RLSP)-1(HAMS)-4(Ind.) | 2.2.2 | Four cornered |
| 11 | Goa 2002 (40) | 5 | 17-16-3-2-1 | 17(BJP)-16(INC)-3(UGDP)-2(MAG)-1(NCP)-1(Ind.) | 2.0.3 | Two cornered |
| | Goa 2007 (40) | 6 | 16-14-3-2-2-1 | 16(INC)-14(BJP)-3(NCP)-2(MAG)-2(SGF)-1(UGDP)-2(Ind.) | 2.0.4 | Two cornered |
| | Goa 2012 (40) | 4 | 21-9-3-2 | 21(BJP)-9(INC)-3(MAG)-2(GVP)-5(Ind.) | 1.1.2 | Unipolar |
| | Goa 2017 (40) | 5 | 17-13-3-3-1 | 17(INC)-13(BJP)-3(MAG)-3(GFP)-1(NCP)-3(Ind.) | 2.0.3 | Two cornered |
| 12 | Haryana 2000 (90) | 7 | 47-21-6-2-1-1-1 | 47(INLD)-21(INC)-6(BJP)-2(HVP)-1(BSP)-1(NCP)-1(RPI)-11(Ind.) | 1.1.5 | Unipolar |
| | Haryana 2005 (90) | 5 | 67-9-2-1-1 | 67(INC)-9(INLD)-2(BJP)-1(BSP)-1(NCP)-10(Ind.) | 1.1.3 | Unipolar |
| | Haryana 2009 (90) | 6 | 40-31-6-4-1-1 | 40(INC)-31(INLD)-6(HJCBL)-4(BJP)-1(BSP)-1(SAD)-7(Ind.) | 2.0.4 | Two cornered |

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|---|---|---|---|---|---|---|
| | Haryana 2014 (90) | 6 | 47-19-15-2-1-1 | 47(BJP)-19(INLD)-15(INC)-2(HJCBL)-1(BSP)-1(SAD)-5(Ind.) | 1.2.4 | Three cornered |
| 13 | Himachal Pradesh 2003 (68) | 5 | 43-16-1-1-1 | 43(INC)-16(BJP)-1(HVC)-1(LJNSP)-1(LMHP)-6(Ind.) | 1.1.3 | Unipolar |
| | Himachal Pradesh 2007 (68) | 3 | 41-23-1 | 41(BJP)-23(INC)-1(BSP)-3(Ind.) | 1.1.1 | Unipolar |
| | Himachal Pradesh 2012 (68) | 3 | 36-26-1 | 36(INC)-26(BJP)-1(LHP)-5(Ind.) | 2.0.1 | Two cornered |
| | Himachal Pradesh 2017 (68) | 3 | 44-21-1 | 44(BJP)-21(INC)-1(CPM)-2(Ind.) | 1.1.1 | Unipolar |
| 14 | Jharkhand 2005 (81) | 11 | 30-17-9-7-6-2-2-2-1-1-1 | 30(BJP)-17(JMM)-9(INC)-7(RJD)-6(JDU)-2(AIFB)-2(UGDP)-2(AJSU)-1(NCP)-1(CPIMLL)-1(JKP)-3(Ind.) | 2.3.6 | Multi cornered |
| | Jharkhand 2009 (81) | 13 | 18-18-14-11-5-5-2-1-1-1-1-1-1 | 18(BJP)-18(JMM)-14(INC)-11(JVMP)-5(RJD)-5(AJSU)-2(JDU)-1(CPIMLL)-1(JBSP)-1(JJM)-1(JHP)-1(MCO)-1(RKP)-2(Ind.) | 2.2.9 | Four cornered |
| | Jharkhand 2014 (81) | 11 | 35-17-8-6-5-1-1-1-1-1-1 | 35(BJP)-17(JMM)-8(JVMP)-6(INC)-5(AJSU)-1(BSP)-1(CPIMLL)-1(JBSP)-1(JHP)-1(MCO)-1(NSM) | 2.3.6 | Multi cornered |
| 15 | Jammu and Kashmir 2002 (87) | 9 | 28-20-16-4-2-1-1-1-1 | 28(JKN)-20(INC)-16(PDP)-4(JKNPP)-2(CPM)-1(BJP)-1(BSP)-1(DM)-1(JKAL)-13(Ind.) | 2.1.6 | Three cornered |
| | Jammu and Kashmir 2008 (87) | 8 | 28-21-17-11-3-1-1-1 | 28(JKN)-21(PDP)-17(INC)-11(BJP)-3(JKNPP)-1(CPM)-1(JKDPN)-1(PDF)-4(Ind.) | 2.2.4 | Four cornered |
| | Jammu and Kashmir 2014 (87) | 7 | 28-25-15-12-2-1-1 | 28(PDP)-25(BJP)-15(JKN)-12(INC)-2(JKPC)-1(CPM)-1(JKPDFS)-3(Ind.) | 2.2.3 | Four cornered |
| 16 | Kerala 2001 (140) | 14 | 62-23-16-9-7-4-3-2-2-2-2-2-2-1 | 62(INC)-23(CPM)-16(MUL)-9(KECM)-7(CPI)-4(JPSS)-3(JDS)-2(NCP)-2(KEC)-2(RSP)-2(KECB)-2(KECJ)-2(RSKPB)-1(CMPKSC)-3(Ind.) | 2.3.9 | Multi cornered |
| | Kerala 2006 (140) | 15 | 61-24-17-7-7-5-4-3-1-1-1-1-1-1-1 | 61(CPM)-24(INC)-17(CPI)-7(KECM)-7(MUL)-5(JDS)-4(KEC)-3(RSP)-1(NCP)-1(JPSS)-1(CS)-1(DIC)-1(INL)-1(KCS)-1(KECB)-5(Ind.) | 2.3.10 | Multi cornered |
| | Kerala 2011 (140) | 12 | 45-38-20-13-9-4-2-2-2-1-1-1 | 45(CPM)-38(INC)-20(MUL)-13(CPI)-9(KECM)-4(JDS)-2(NCP)-2(RSP)-2(SJD)-1(KECJ)-1(KECB)-1(KRSP)-2(Ind.) | 2.3.7 | Multi cornered |
| | Kerala 2016 (140) | 13 | 58-22-19-18-6-3-2-1-1-1-1-1 | 58(CPM)-22(INC)-19(CPI)-18(IUML)-6(KECM)-3(JDS)--2(NCP)-1(BJP)-1(CS)-1(CMPKSC)-1(KECB)-1(KECJ)-1(NSC)-6(Ind.) | 2.2.9 | Multi cornered |
| 17 | Manipur 2000 (60) | 10 | 23-11-6-6-5-4-1-1-1-1 | 23(MSCP)-11(INC)-6(BJP)-6(FPM)-5(NCP)-4(MPP)-1(JDS)-1(JDU)-1(RJD)-1(SAP)-1(Ind.) | 2.3.5 | Multi cornered |
| | Manipur 2002 (60) | 10 | 20-13-7-5-4-3-3-2-2-1 | 20(INC)-13(FPM)-7(MSCP)-5(CPI)-4(BJP)-3(NCP)-3(SAP)-2(MPP)-2(DRPP)-1(MNC) | 2.3.5 | Multi cornered |
| | Manipur 2007 (60) | 6 | 30-5-5-4-3-3 | 30(INC)-5(NCP)-5(MPP)-4(CPI)-3(RJD)-3(NPP)-10(Ind.) | 1.0.5 | Unipolar |
| | Manipur 2012 (60) | 6 | 42-7-5-4-1-1 | 42(INC)-7(AITC)-5(MSCP)-4(NPF)-1(LJP)-1(NCP) | 1.0.5 | Unipolar |
| | Manipur 2017 (60) | 6 | 28-21-4-4-1-1 | 28(INC)-21(BJP)-4(NPF)-4(NPEP)-1(AITC)-1(LJP)-1(Ind.) | 2.0.4 | Two cornered |

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|---|---|---|---|---|---|---|
| 18 | Meghalaya 2003 (60) | 7 | 22-14-9-4-2-2-2 | 22(INC)-14(NCP)-9(UDP)-4(MDP)-2(BJP)-2(HPDP)-2(KHNAM)-5(Ind.) | 2.2.3 | Four cornered |
| | Meghalaya 2008 (60) | 6 | 25-15-11-2-1-1 | 25(INC)-15(NCP)-11(UDP)-2(HPDP)-1(BJP)-1(KHNAM)-5(Ind.) | 2.1.3 | Three cornered |
| | Meghalaya 2013 (60) | 7 | 29-8-4-2-2-1-1 | 29(INC)-8(UDP)-4(HPDP)-2(NCP)-2(NPP)-1(GNC)-1(NESDP)-13(Ind.) | 1.2.4 | Three cornered |
| | Meghalaya 2018 (60) | 8 | 21-19-6-4-2-2-1-1 | 21(INC)-19(NPEP)-6(UDP)-4(PDF)-2(HSPDP)-2(BJP)-1(NCP)-1(KHNAM)-3(Ind.) | 2.2.4 | Four cornered |
| 19 | Mizoram 2003 (40) | 6 | 21-12-3-2-1-1 | 21(MNF)-12(INC)-3(MZPC)-2(ZNP)-1(HPC)-1(MDF) | 1.1.4 | Unipolar |
| | Mizoram 2008 (40) | 5 | 32-3-2-2-1 | 32(INC)-3(MNF)-2(MPC)-2(ZNP)-1(MDP) | 1.0.4 | Unipolar |
| | Mizoram 2013 (40) | 3 | 34-5-1 | 34(INC)-5(MNF)-1(MPC) | 1.0.2 | Unipolar |
| | Mizoram 2018 (40) | 3 | 27-4-1 | 27(MNF)-4(INC)-1(BJP)-8(Ind.) | 1.0.2 | Unipolar |
| 20 | Madhya Pradesh 2003 (230) | 9 | 173-38-7-3-2-2-1-1-1 | 173(BJP)-38(INC)-7(SP)-3(GGP)-2(BSP)-2(RSMD)-1(CPM)-1(NCP)-1(JDU)-2(Ind.) | 1.1.7 | Unipolar |
| | Madhya Pradesh 2008 (230) | 5 | 143-71-7-5-1 | 143(BJP)-71(INC)-7(BSP)-5(BJSH)-1(SP)-3(Ind.) | 1.1.3 | Unipolar |
| | Madhya Pradesh 2013 (230) | 3 | 165-58-4 | 165(BJP)-58(INC)-4(BSP)-3(Ind.) | 1.1.1 | Unipolar |
| | Madhya Pradesh 2018 (230) | 4 | 114-109-2-1 | 114(INC)-109(BJP)-2(BSP)-1(SP)-4(Ind.) | 2.0.2 | Two cornered |
| 21 | Nagaland 2003 (60) | 6 | 21-19-7-5-3-1 | 21(INC)-19(NPF)-7(BJP)-5(NDM)-3(JDU)-1(SAP)-4(Ind.) | 2.2.2 | Four cornered |
| | Nagaland 2008 (60) | 4 | 26-23-2-2 | 26(NPF)-23(INC)-2(BJP)-2(NCP)-7(Ind.) | 2.0.2 | Two cornered |
| | Nagaland 2013 (60) | 5 | 38-9-4-1-1 | 38(NPF)-9(INC)-4(NCP)-1(BJP)-1(JDU)-8(Ind.) | 1.1.3 | Unipolar |
| | Nagaland 2018 (60) | 5 | 26-17-12-2-1 | 26(NPF)-17(NDPP)-12(BJP)-2(NPEP)-1(JDU)-1(Ind.) | 2.1.2 | Three cornered |
| 22 | Orissa 2000 (147) | 8 | 68-38-26-3-1-1-1-1 | 68(BJD)-38(BJP)-26(INC)-3(JMM)-1(CPI)-1(CPM)-1(JDS)-1(AITC)-8(Ind.) | 1.2.5 | Three cornered |
| | Orissa 2004 (147) | 7 | 61-38-32-4-2-1-1 | 61(BJD)-38(INC)-32(BJP)-4(JMM)-2(OGP)-1(CPI)-1(CPM)-8(Ind.) | 1.2.5 | Three cornered |
| | Orissa 2009 (147) | 5 | 103-27-6-4-1 | 103(BJD)-27(INC)-6(BJP)-4(NCP)-1(CPI)-6(Ind.) | 1.1.3 | Unipolar |
| | Orissa 2014 (147) | 5 | 117-16-10-1-1 | 117(BJD)-16(INC)-10(BJP)-1(CPM)-1(SKD)-2(Ind.) | 1.2.3 | Unipolar |
| 23 | Puducherry 2001 (30) | 6 | 11-7-4-3-2-1 | 11(INC)-7(DMK)-4(PMC)-3(AIADMK)-2(TMCM)-1(BJP)-2(Ind.) | 2.2.2 | Four cornered |
| | Puducherry 2006 (30) | 7 | 10-7-3-3-2-1-1 | 10(INC)-7(DMK)-3(AIADMK)-3(PMC)-2(PMK)-1(MDMK)-1(CPI)-3(Ind.) | 2.2.3 | Four cornered |
| | Puducherry 2011 (30) | 4 | 15-7-5-2 | 15(AINRC)-7(INC)-5(AIADMK)-2(DMK)-1(Ind.) | 1.2.1 | Three cornered |
| | Puducherry 2016 (30) | 4 | 15-8-4-2 | 15(INC)-8(AINRC)-4(ADMK)-2(DMK)-1(Ind.) | 1.2.1 | Three cornered |
| 24 | Punjab 2002 (117) | 4 | 62-41-3-2 | 62(INC)-41(SAD)-3(BJP)-2(CPI)-9(Ind.) | 2.0.2 | Two cornered |
| | Punjab 2007 (117) | 3 | 48-44-19 | 48(SAD)-44(INC)-19(BJP)-5(Ind.) | 2.1.0 | Three cornered |
| | Punjab 2012 (117) | 3 | 56-46-12 | 56(SAD)-46(INC)-12(BJP)-3(Ind.) | 2.1.0 | Three cornered |
| | Punjab 2017 (117) | 5 | 77-20-15-3-2 | 77(INC)-20(AAAP)-15(SAD)-3(BJP)-2(LIP) | 1.2.2 | Three cornered |
| 25 | Rajasthan 2003 (200) | 8 | 120-56-4-2-2-1-1-1 | 120(BJP)-56(INC)-4(INLD)-2(BSP)-2(JDU)-1(CPM)-1(LJNSP)-1(RSNM)-13(Ind.) | 1.1.6 | Unipolar |

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|---|---|---|---|---|---|---|
| | Rajasthan 2008 (200) | 7 | 96-78-6-3-1-1-1 | 96(INC)-78(BJP)-6(BSP)-3(CPM)-1(SP)-1(JDU)-1(LSP)-14(Ind.) | 2.1.4 | Three cornered |
| | Rajasthan 2013 (200) | 5 | 163-21-4-3-2 | 163(BJP)-21(INC)-4(NPP)-3(BSP)-2(NUZP)-7(Ind.) | 1.1.3 | Three cornered |
| | Rajasthan 2018 (200) | 7 | 100-73-6-3-2-2-1 | 100(INC)-73(BJP)-6(BSP)-3(RLP)-2(CPM)-2(BTP)-1(RLD)-13(Ind.) | 2.1.4 | Three cornered |
| 26 | Sikkim 2004 (32) | 2 | 31-1 | 31(SDF)-1(INC) | 1.0.1 | Unipolar |
| | Sikkim 2009 (32) | 1 | 32 | 32(SDF) | 1.0.0 | Unipolar |
| | Sikkim 2014 (32) | 2 | 22-10 | 22(SDF)-10(SKM) | 1.1.0 | Unipolar |
| 27 | Telangana 2018 (119) | 6 | 88-19-7-2-1-1 | 88(TRS)-19(INC)-7(AIMIM)-2(TDP)-1(BJP)-1(AIFB)-1(Ind.) | 1.1.4 | Unipolar |
| 28 | Tamil Nadu 2001 (234) | 10 | 132-31-23-20-7-6-5-4-2-1 | 132(AIADMK)-31(DMK)-23(TMCM)-20(PMK)-7(INC)-6(CPM)-5(CPI)-4(BJP)-2(MADMK)-1(FBL)-3(Ind.) | 1.3.6 | Unipolar |
| | Tamil Nadu 2006 (234) | 9 | 96-61-34-18-9-6-6-2-1 | 96(DMK)-61(AIADMK)-34(INC)-18(PMK)-9(CPM)-6(CPI)-6(MDMK)-2(VCK)-1(DMDK)-1(Ind.) | 2.2.5 | Four cornered |
| | Tamil Nadu 2011 (234) | 10 | 150-29-23-10-9-5-3-2-2-1 | 150(AIADMK)-29(DMDK)-23(DMK)-10(CPM)-9(CPI)-5(INC)-3(PMK)-2(MMK)-2(PT)-1(AIFB) | 1.2.7 | Three cornered |
| | Tamil Nadu 2016 (234) | 4 | 135-88-8-1 | 135(AIADMK)-88(DMK)-8(INC)-1(IUML) | 2.0.2 | Two cornered |
| 29 | Uttar Pradesh 2002 (403) | 16 | 143-98-88-25-14-4-3-2-2-2-1-1-1-1-1-1 | 143(SP)-98(BSP)-88(BJP)-25(INC)-14(RLD)-4(RTKP)-3(AD)-2(CPM)-2(JDU)-2(ABLTC)-1(ABHM)-1(JP)-1(LJNSP)-1(NLP)-1(RPD)-1(SJPR)-16(Ind.) | 2.3.11 | Multi cornered |
| | Uttar Pradesh 2007 (403) | 12 | 206-97-51-22-10-2-1-1-1-1-1-1 | 206(BSP)-97(SP)-51(BJP)-22(INC)-10(RLD)-2(RPD)-1(JDU)-1(ABLTC)-1(BJSH)-1(JM)-1(RSBP)-1(UPUDF)-9(Ind.) | 1.3.8 | Four cornered |
| | Uttar Pradesh 2012 (403) | 10 | 224-80-47-28-9-4-2-1-1-1 | 224(SP)-80(BSP)-47(BJP)-28(INC)-9(RLD)-4(PECP)-2(QED)-1(NCP)-1(AD)-1(IEMC)-6(Ind.) | 1.3.6 | Four cornered |
| | Uttar Pradesh 2017 (403) | 8 | 312-47-19-9-7-4-1-1 | 312(BJP)-47(SP)-19(BSP)-9(ADAL)-7(INC)-4(SBSP)-1(RLD)-1(NINSHAD)-3(Ind.) | 1.1.6 | Unipolar |
| 30 | Uttarakhand 2002 (70) | 5 | 36-19-7-4-1 | 36(INC)-19(BJP)-7(BSP)-4(UKKD)-1(NCP)-3(Ind.) | 1.1.3 | Unipolar |
| | Uttarakhand 2007 (70) | 4 | 34-21-8-3 | 34(BJP)-21(INC)-8(BSP)-3(UKKD)-3(Ind.) | 2.1.1 | Three cornered |
| | Uttarakhand 2012 (70) | 4 | 32-31-3-1 | 32(INC)-31(BJP)-3(BSP)-1(UKKD)-3(Ind.) | 2.1.1 | Three cornered |
| | Uttarakhand 2017 (70) | 2 | 56-11 | 56(BJP)-11(INC)-2(Ind.) | 1.1.0 | Unipolar |
| 31 | West Bengal 2001 (294) | 8 | 143-60-26-25-17-7-4-3 | 143(CPM)-60(AITC)-26(INC)-25(FBL)-17(RSP)-7(CPI)-4(WBSP)-3(GNLF)-9(Ind.) | 2.3.3 | Multi cornered |
| | West Bengal 2006 (294) | 11 | 176-30-23-21-20-8-4-3-1-1-1 | 176(CPM)-30(AITC)-23(AIFB)-21(INC)-20(RSP)-8(CPI)-4(WBSP)-3(GNLF)-1(DSPP)-1(RJD)-1(JKPN)-6(Ind.) | 1.4.6 | Unipolar |
| | West Bengal 2011 (294) | 10 | 284-42-40-11-7-3-2-1-1-1 | 284(AITC)-42(INC)-40(CPM)-11(AIFB)-7(RSP)-3(GOJAM)-2(CPI)-1(SP)-1(DSPP)-1(SUCI)-2(Ind.) | 1.2.7 | Unipolar |
| | West Bengal 2016 (294) | 8 | 211-44-26-3-3-3-2-1 | 211(AITC)-44(INC)-26(CPM)-3(BJP)-3(RSP)-3(GOJAM)-2(AIFB)-1(CPI)-1(Ind.) | 1.2.5 | Unipolar |

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