

Analyzing Parliamentary Voting Dynamics Using Multiple Aspects Trajectory Clustering Approach

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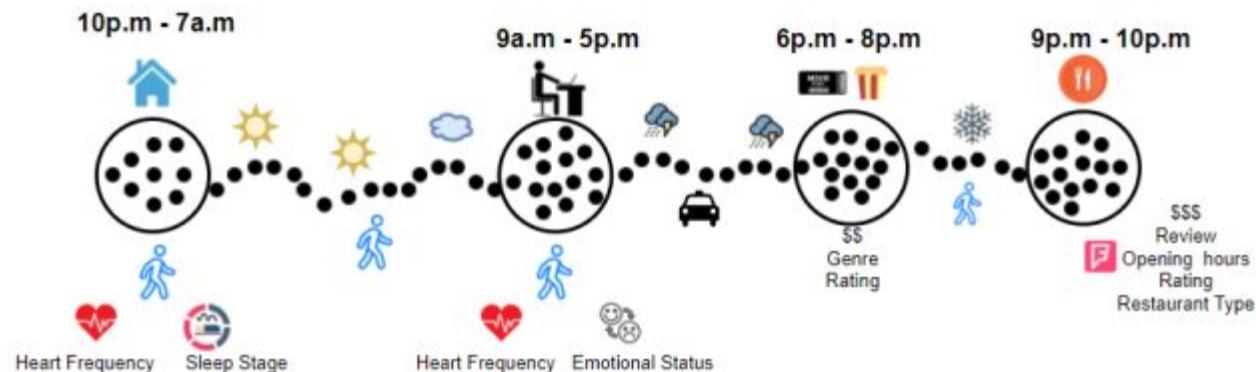
Basometro:
insights

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1. Introduction

Application

- Multiple Aspect Trajectory data.
- Basometro.



Multiple Aspect Trajectory

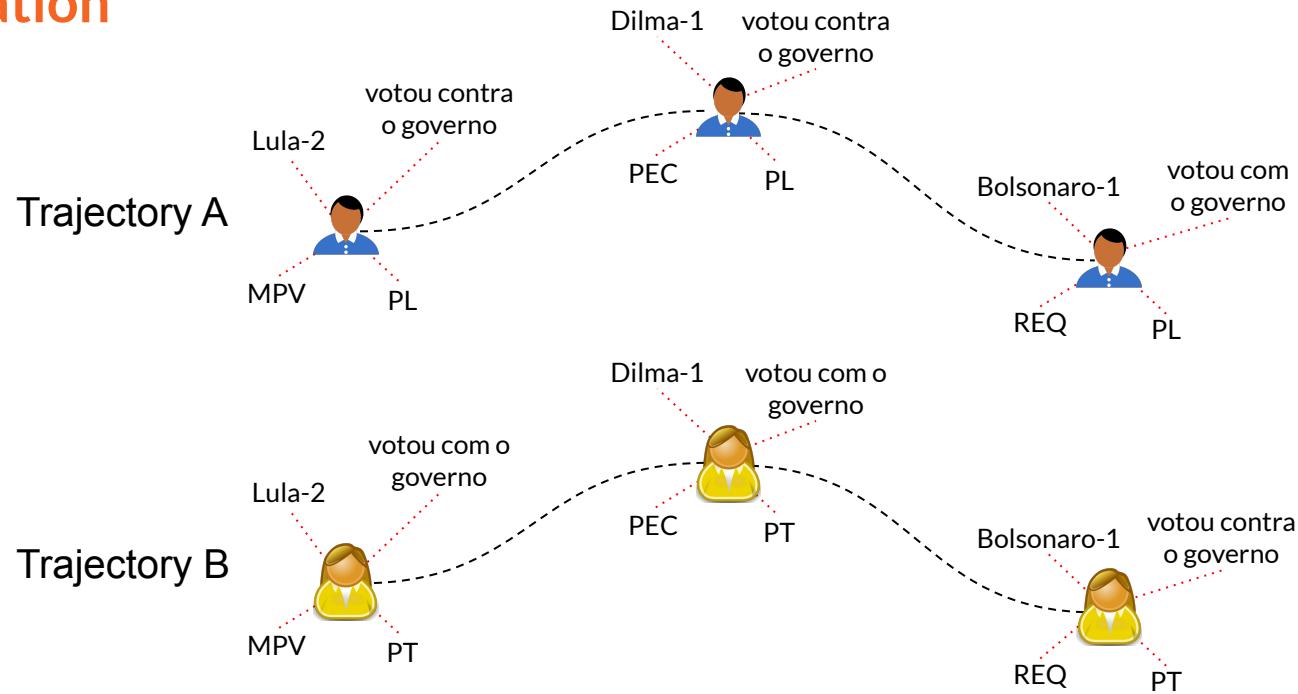
1. Introduction

Application

- Multiple Aspect Trajectory data.
- **Basometro.**
 - Each trajectory is related to a deputy.
 - 6 months for trajectory time-window.
 - The aspects are related to each deputy's vote along.

1. Introduction

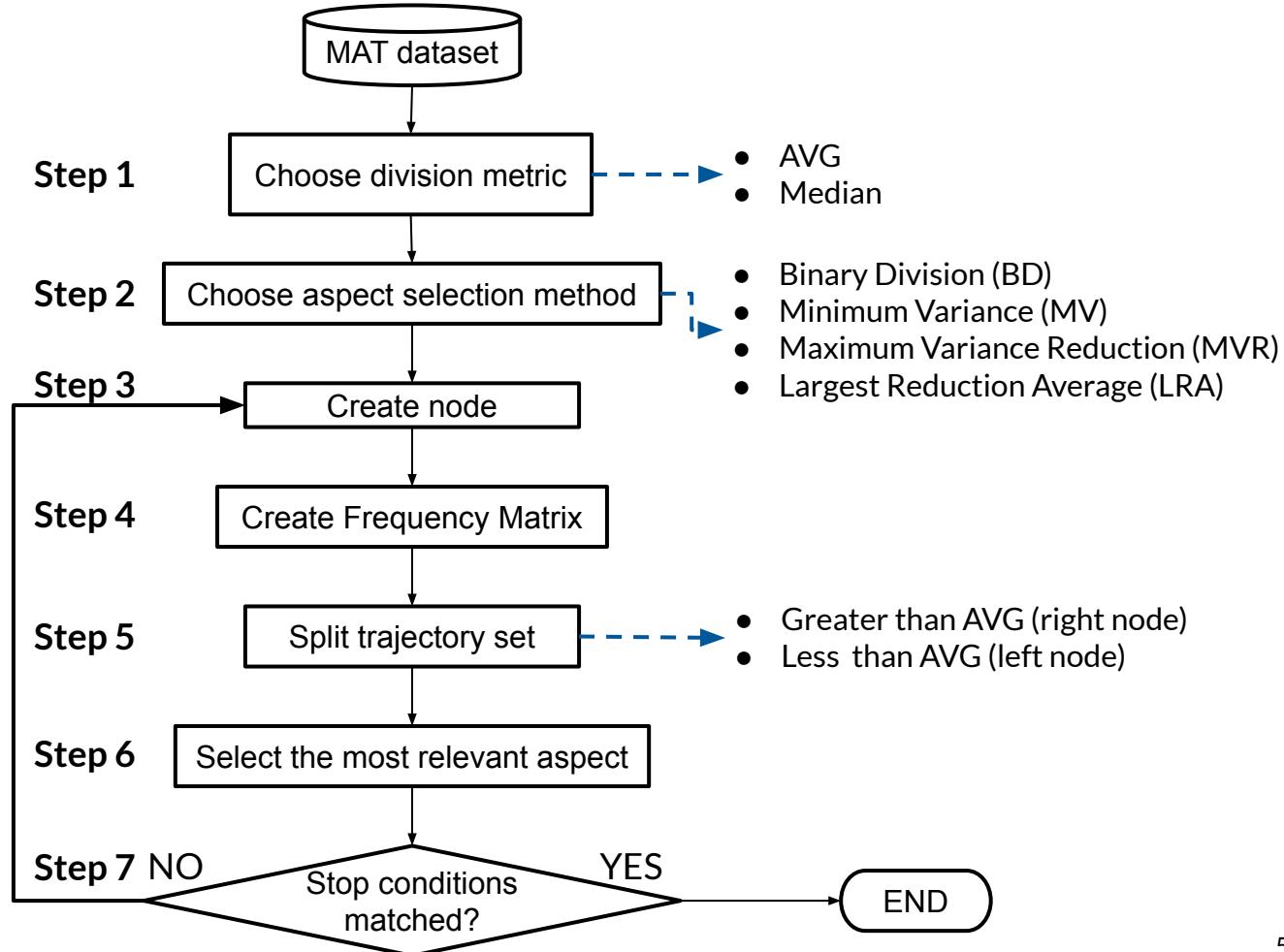
Application



Multiple Aspect Trajectory: Basometro

2. MAT-Tree

Algorithm



Specific government:
combined features (MRV)

Summary

Bolsonaro government

- Tree is right balanced. High number of occurrences in the relevant aspects.
- In general the outliers are from left-parties.
- The biggest cluster have long trajectories showing intense participation.

Dilma government

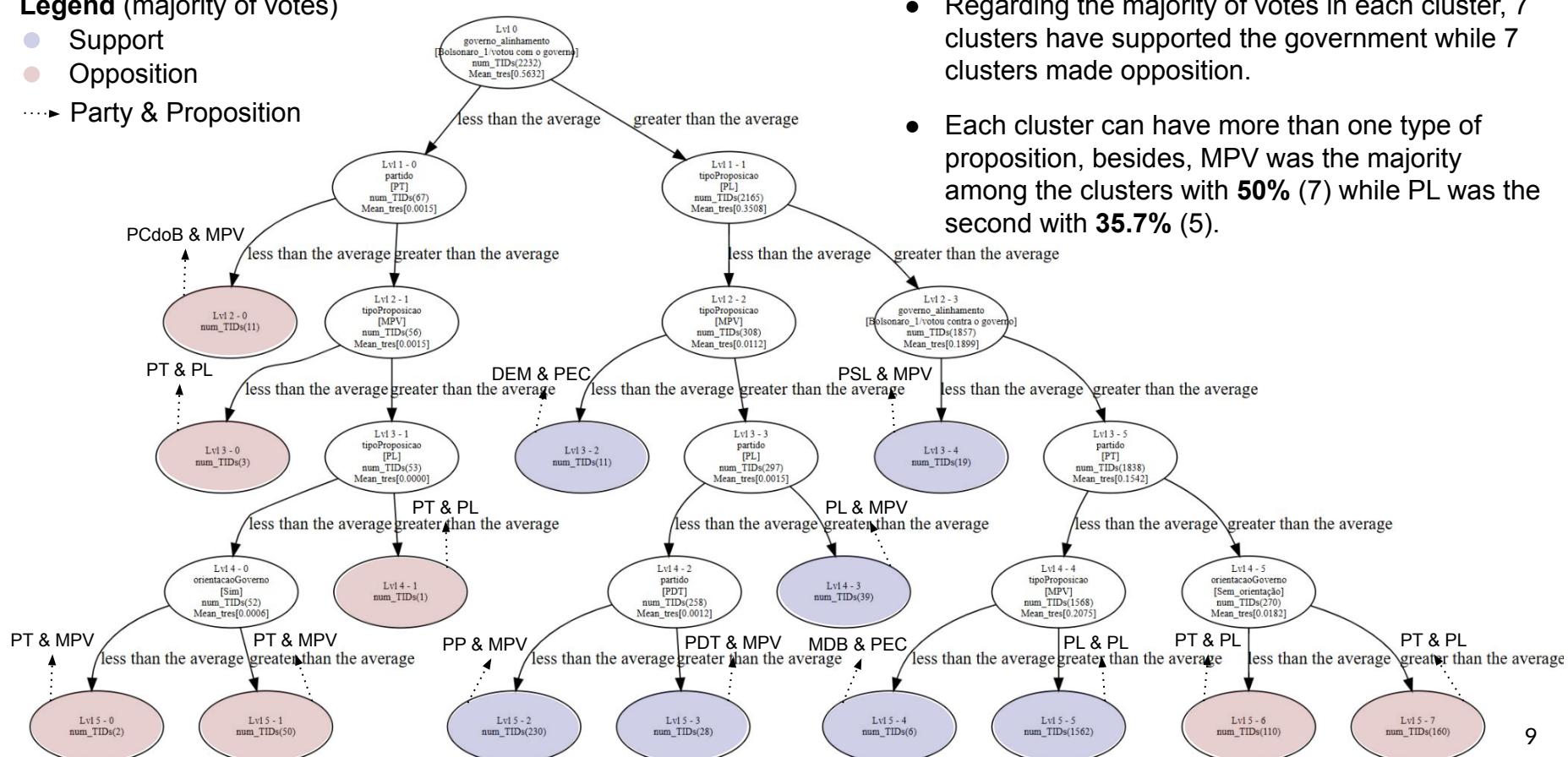
- Tree is left balanced. The number of occurrences in the relevant aspects are not so high.
- Period with trajectories that are not long in length.
- In general the outliers are from and the opposition are from center-parties.

Bolsonaro government

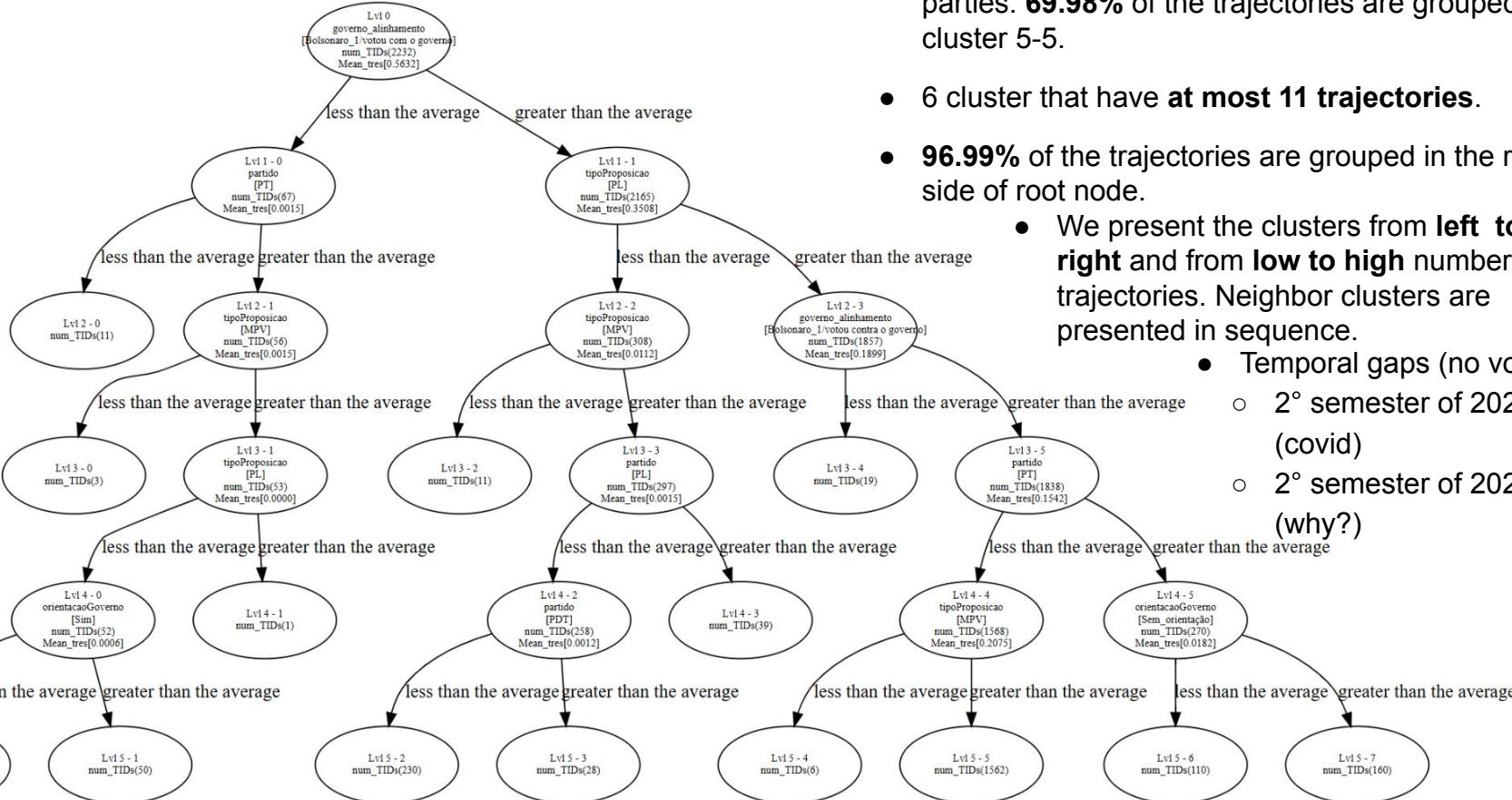
3.1.1. Bolsonaro government: overview support (clusters)

Legend (majority of votes)

- Support
- Opposition
- Party & Proposition

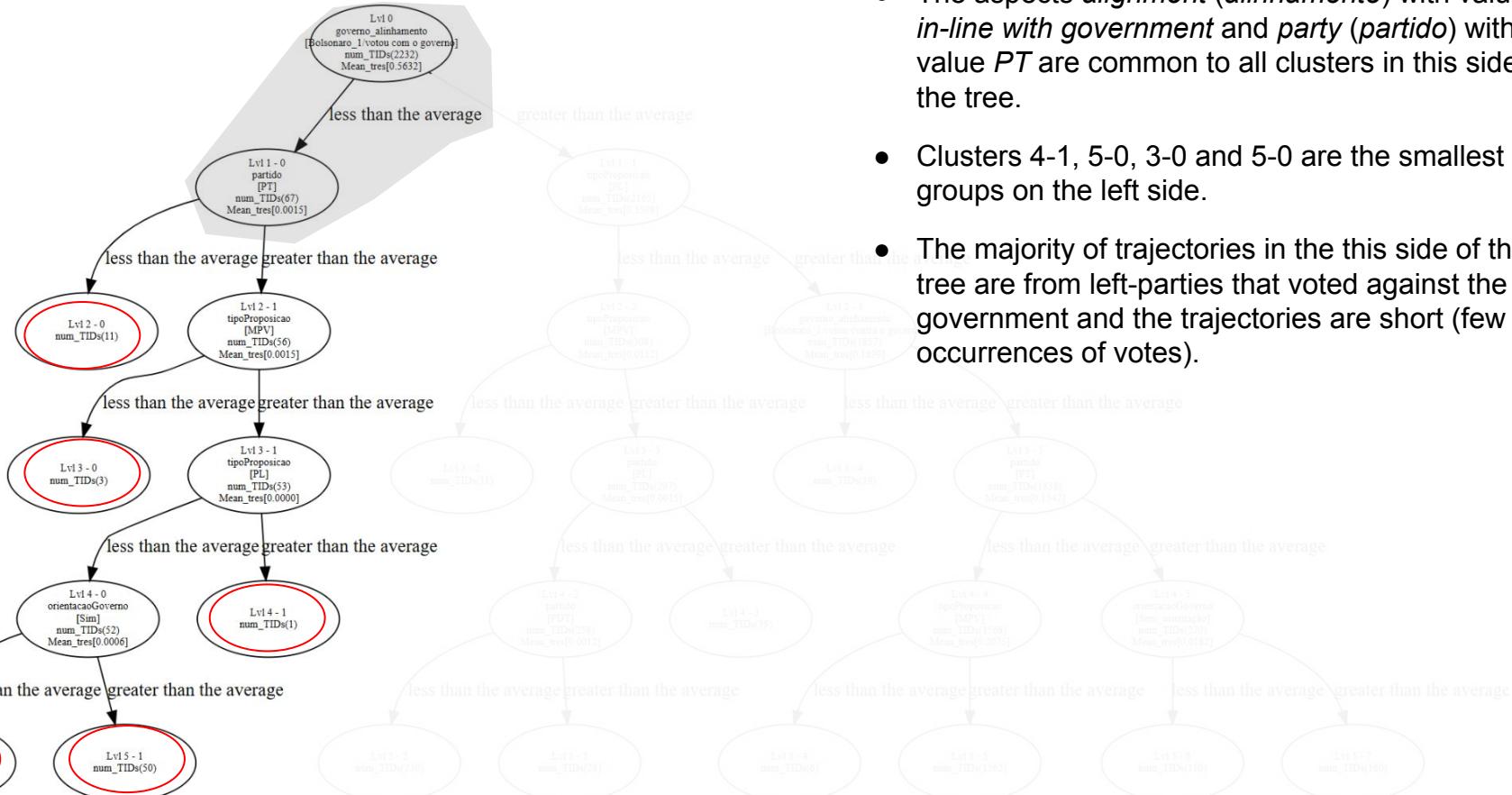


3.2.1. Bolsonaro government

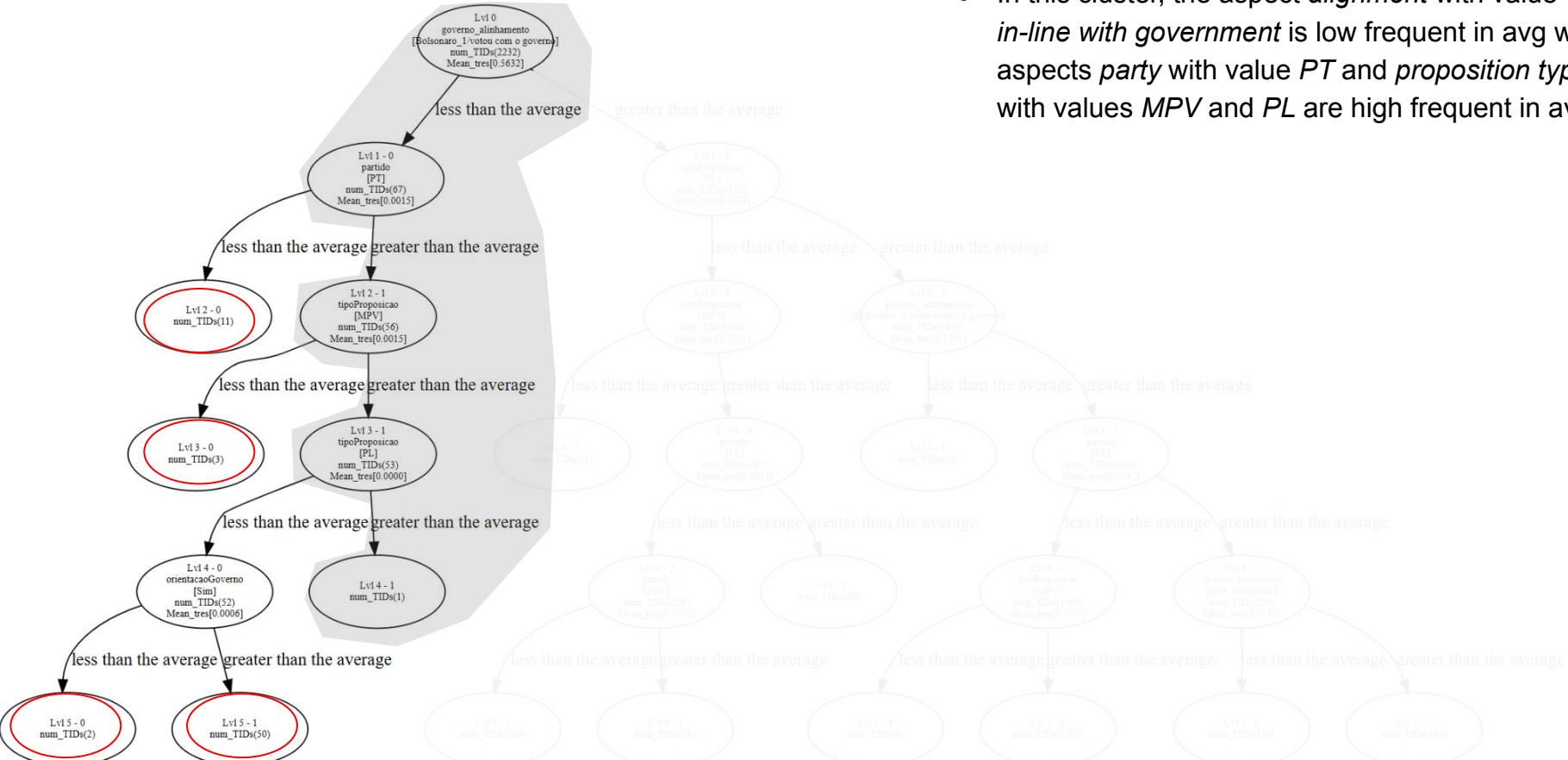


- 14 clusters, 560 unique deputies distributed into 33 parties. **69.98%** of the trajectories are grouped into cluster 5-5.
- 6 cluster that have **at most 11 trajectories**.
- **96.99%** of the trajectories are grouped in the right side of root node.
 - We present the clusters from **left to right** and from **low to high** number of trajectories. Neighbor clusters are presented in sequence.
 - Temporal gaps (no votes)
 - 2° semester of 2020 (covid)
 - 2° semester of 2022 (why?)

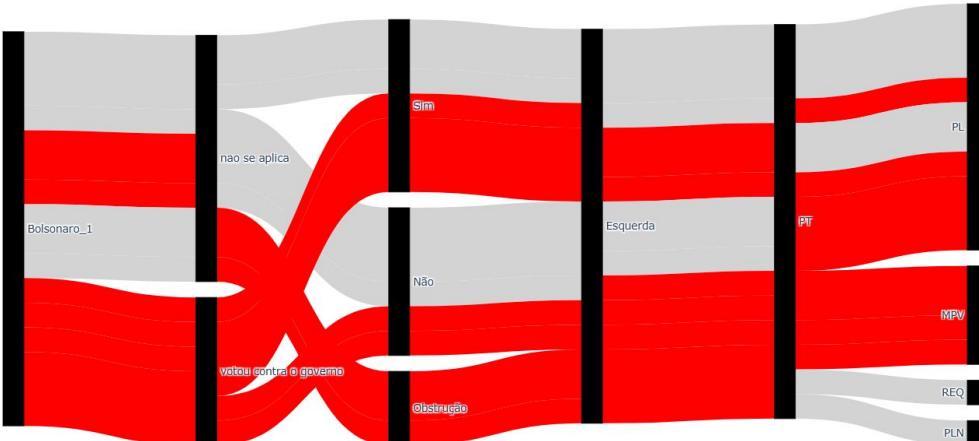
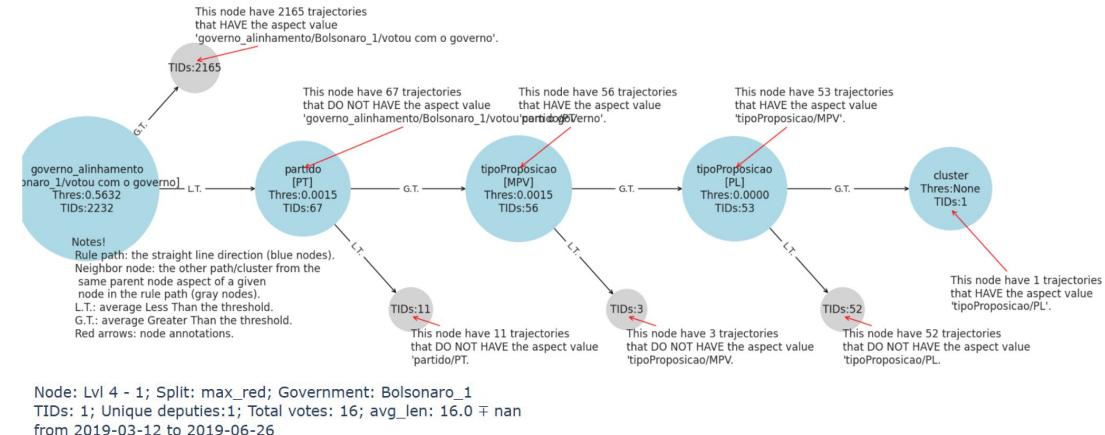
3.2.1. Bolsonaro government



3.2.1. Bolsonaro government



3.2.1. Bolsonaro government

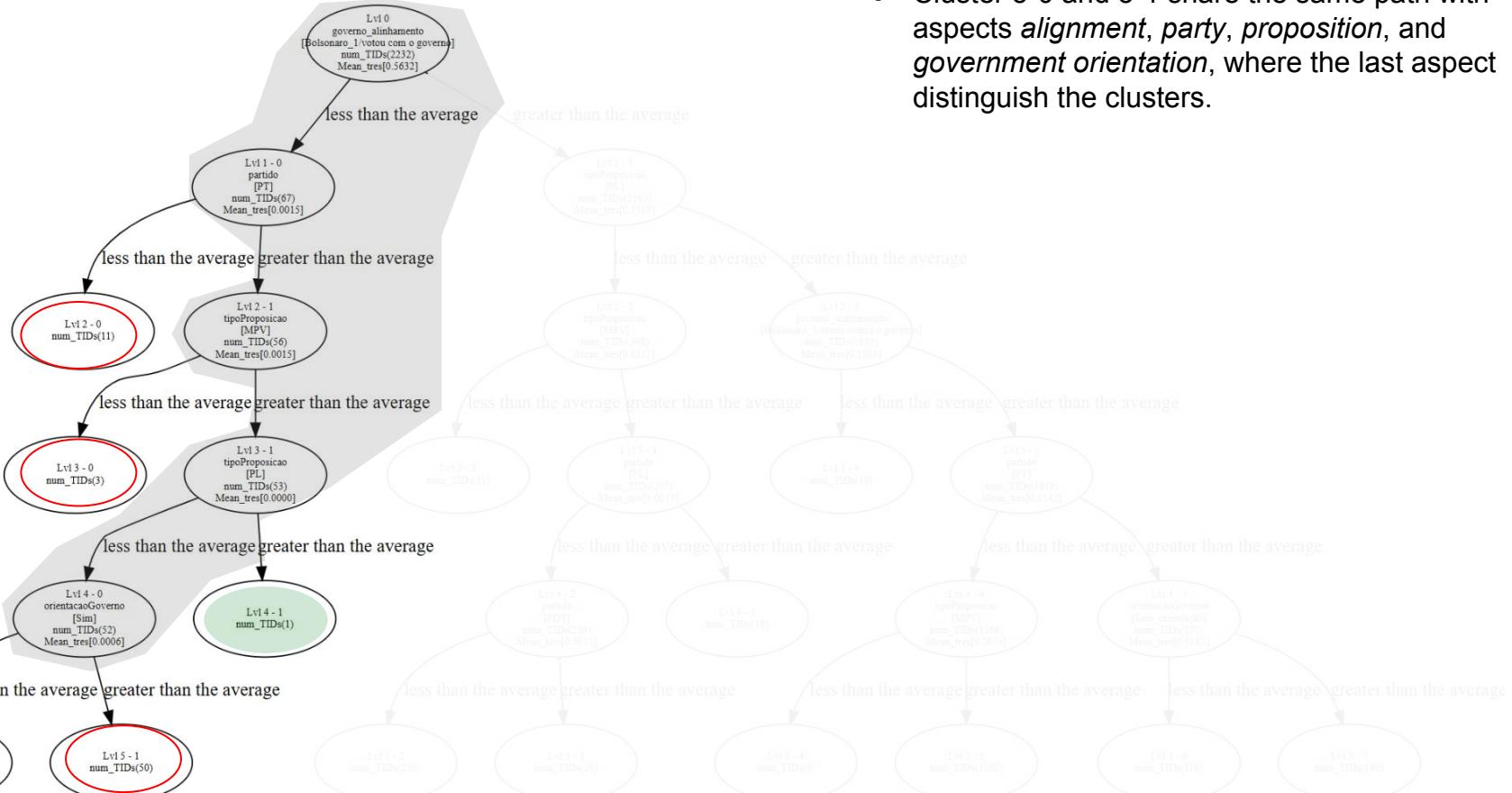


- This is a cluster with 1 trajectory of a deputy from PT party that mainly voted against the government on MPV and PL propositions. We can consider the Obstruction as a vote against the government.
- Cluster low occurrences. Ghosting deputy trajectory.

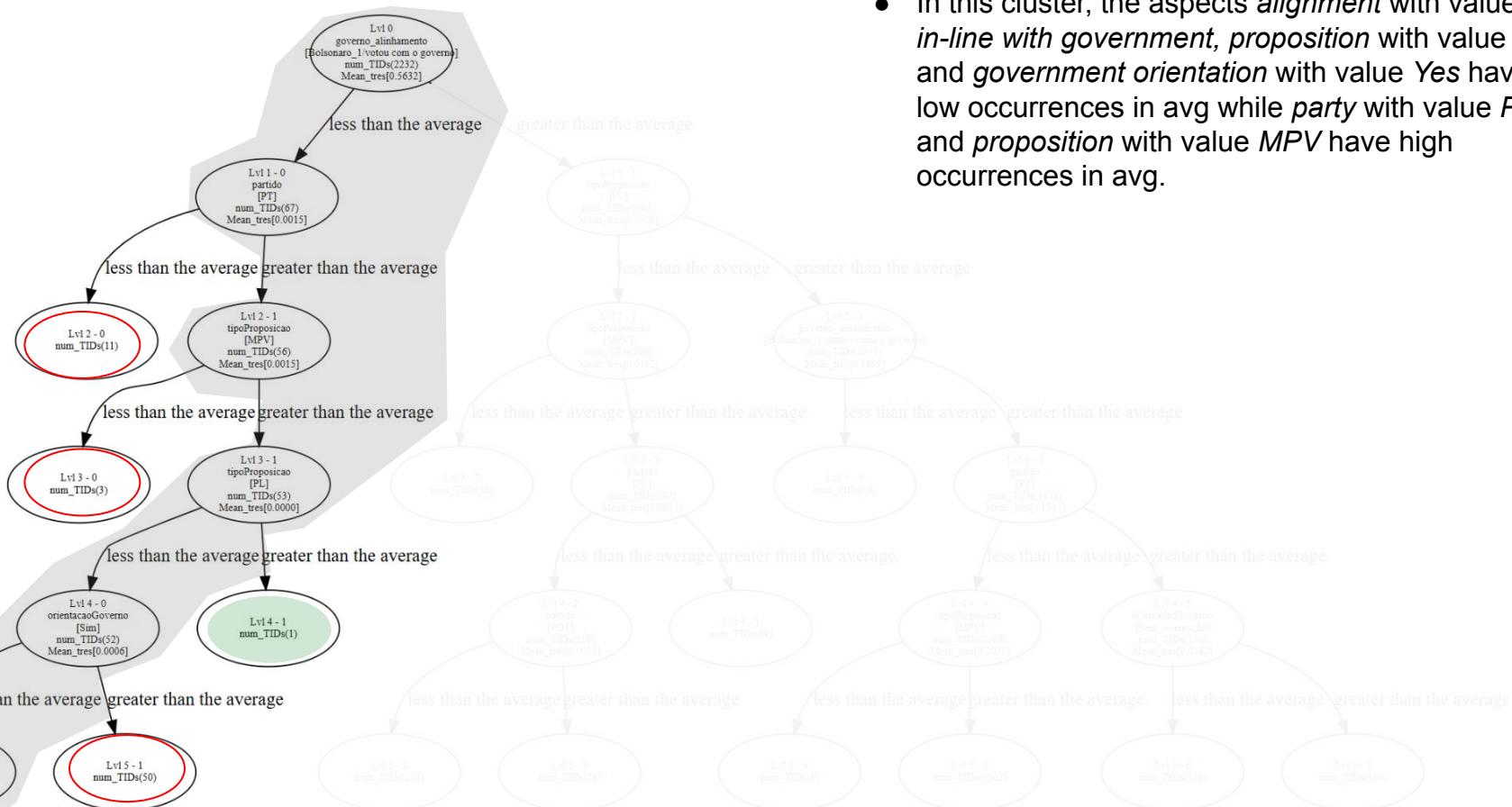
Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Gleisi Hoffmann	5	1	16	14.55	12/03/19 to 26/06/19

3.2.1. Bolsonaro government

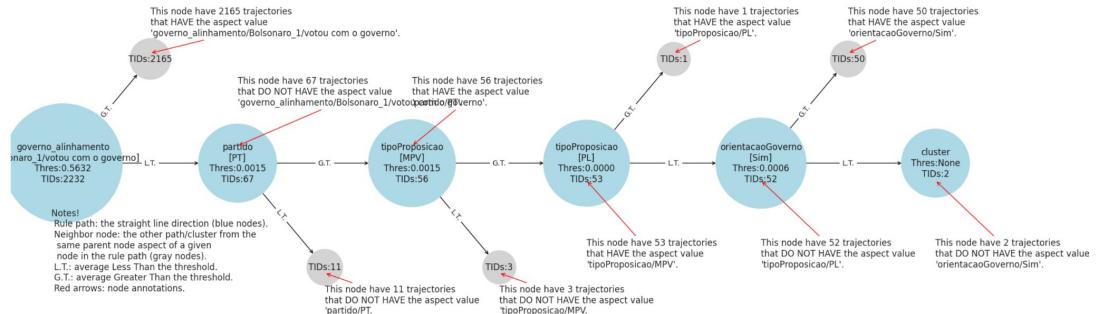
- Cluster 5-0 and 5-1 share the same path with aspects *alignment*, *party*, *proposition*, and *government orientation*, where the last aspect distinguish the clusters.



3.2.1. Bolsonaro government



3.2.1. Bolsonaro government



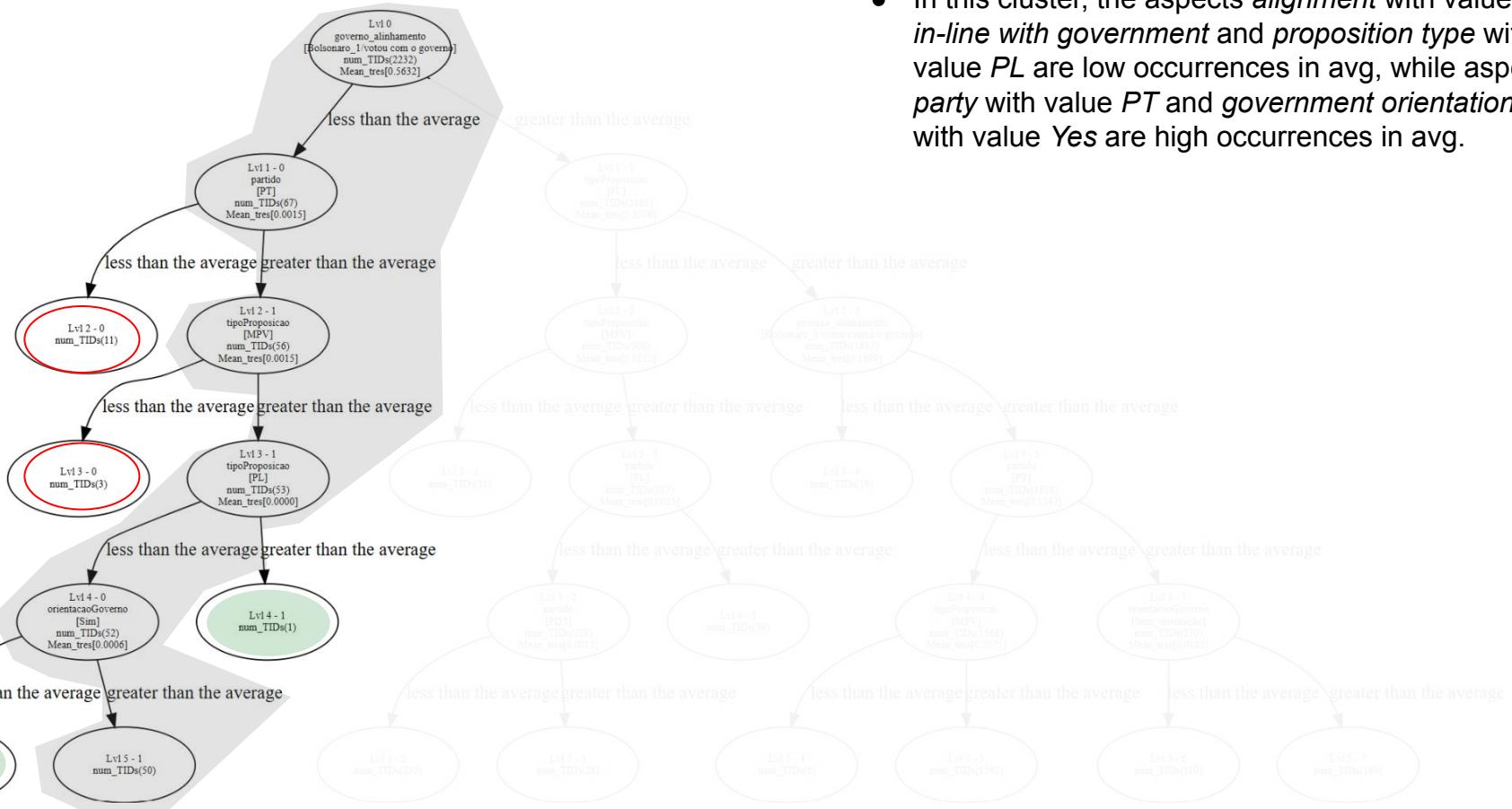
Node: Lvl 5 - 0; Split: max_red; Government: Bolsonaro_1
 TIDs: 2; Unique deputies: 2; Total votes: 7; avg_len: 3.5 ± 2.12
 from 2020-02-11 to 2020-02-18



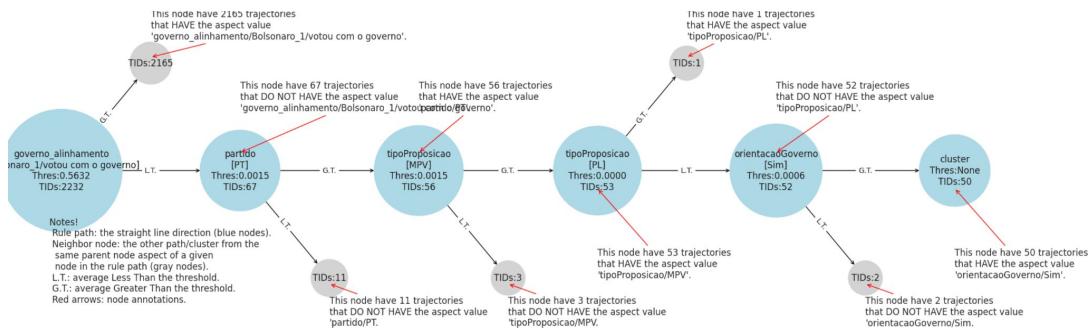
- This is a cluster of votes with deputies from PT party that voted to obstruct the government on MPV propositions.
- Cluster low occurrences. Ghosting deputies trajectory.
- This group has, on avg, **$19.44\% \pm 11.79\%$** of presence during the period with a coefficient of variance equal to **60.65%** (very high).

Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Luizianne Lins	6	1	2	11.11	11/02/20 to 17/02/20
Afonso Florence	6	1	5	27.78	11/02/20 to 18/02/20

3.2.1. Bolsonaro government



3.2.1. Bolsonaro government

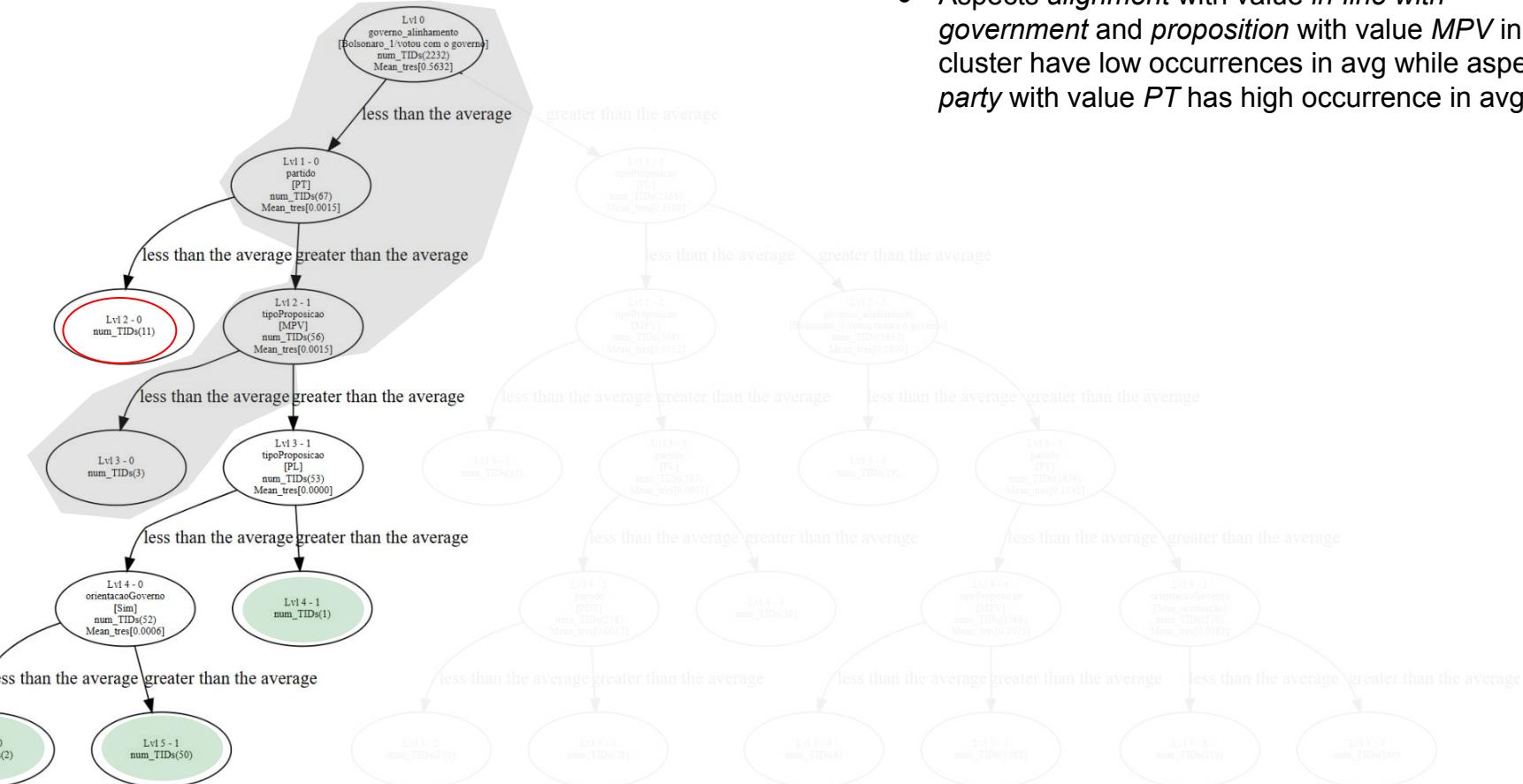


Node: Lvl 5 - 1; Split: max_red; Government: Bolsonaro_1
TIDs: 50; Unique deputies: 50; Total votes: 484; avg_len: 9.68 ± 3.63
from 2020-02-11 to 2020-02-18

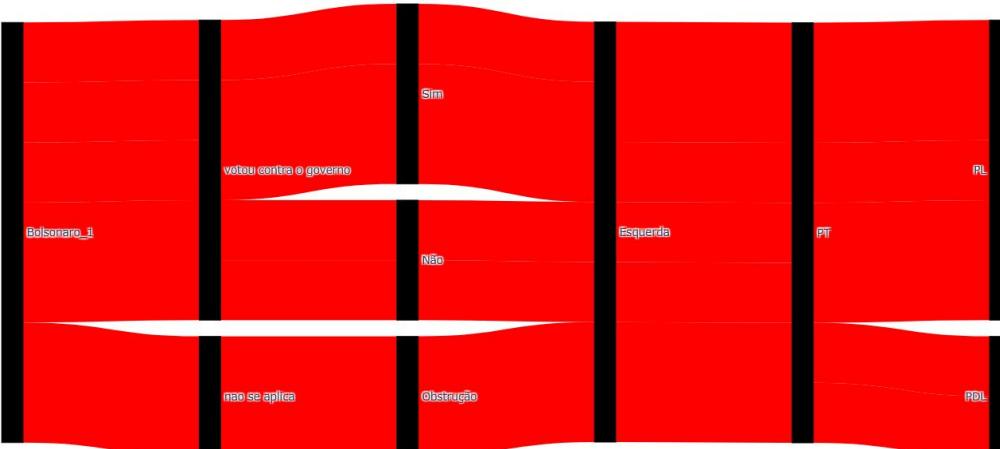
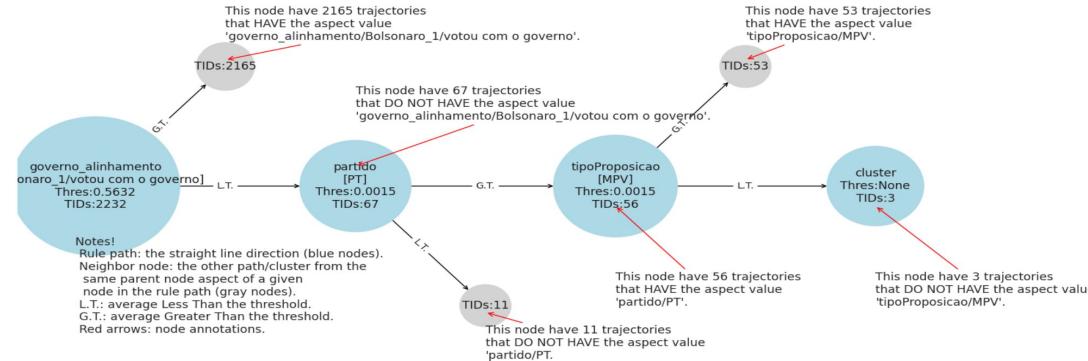


- **This is a cluster of votes with deputies from PT party that mainly voted against the government as well as to obstruct on MPV proposition.**
- Cluster with low occurrences from **11/02/20** to **18/02/20**. Period close to know the Covid.
- Left-party making opposition to government which is aligned to right political spectrum.
- **80.65%** of deputies from PT are in this group.
- This group has, on avg, **53.78%±20.19%** of presence during the period with a coefficient of variance equal to **37.54%** (very high).

3.2.1. Bolsonaro government



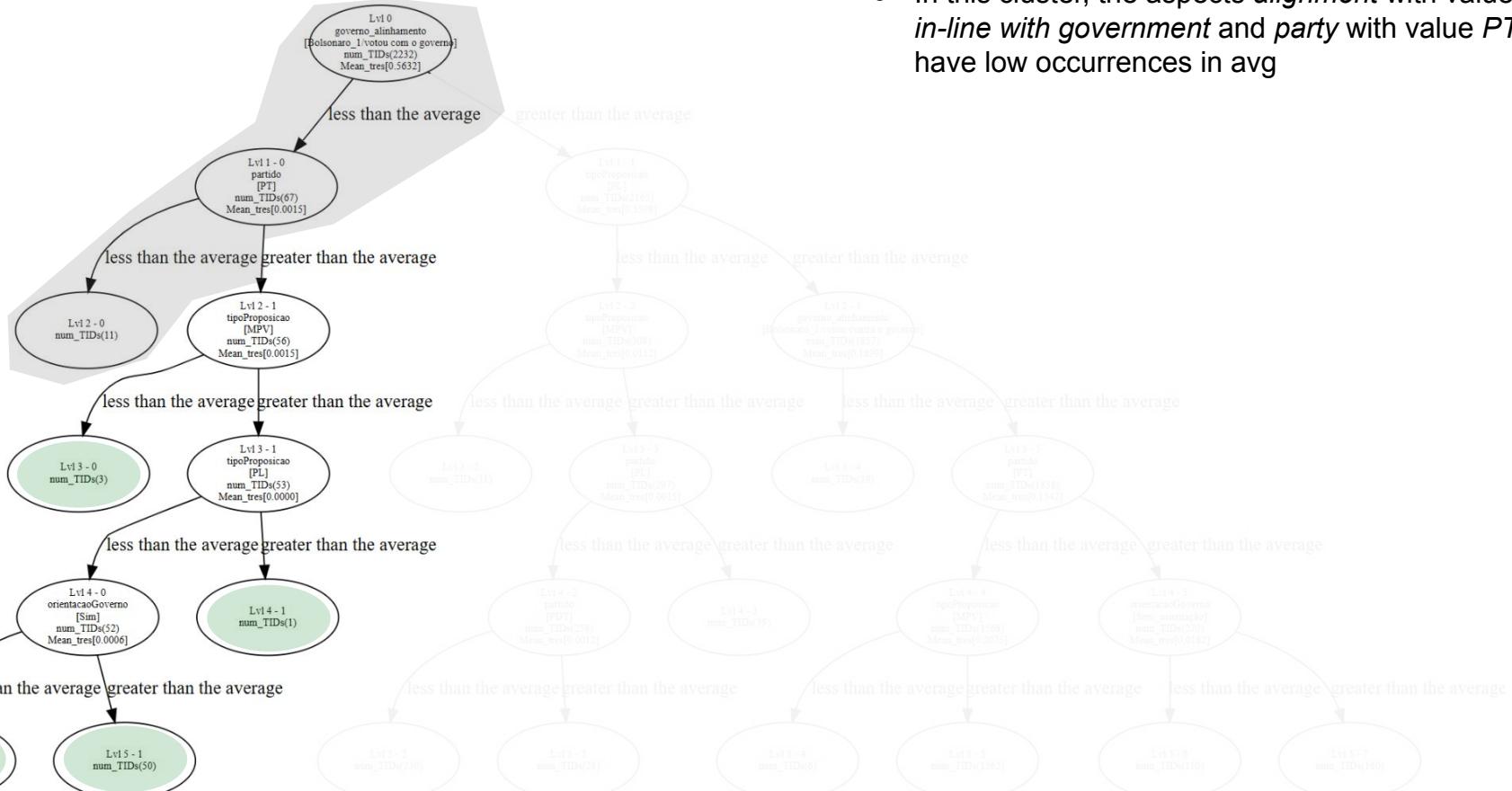
3.2.1. Bolsonaro government



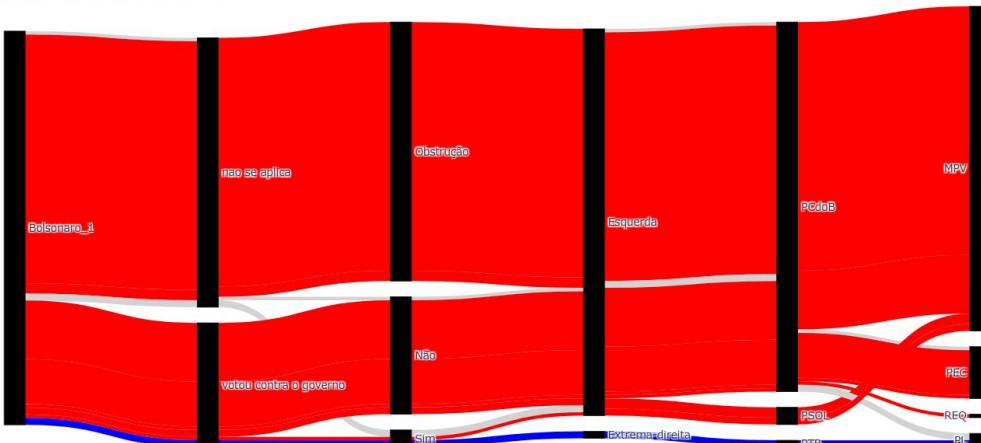
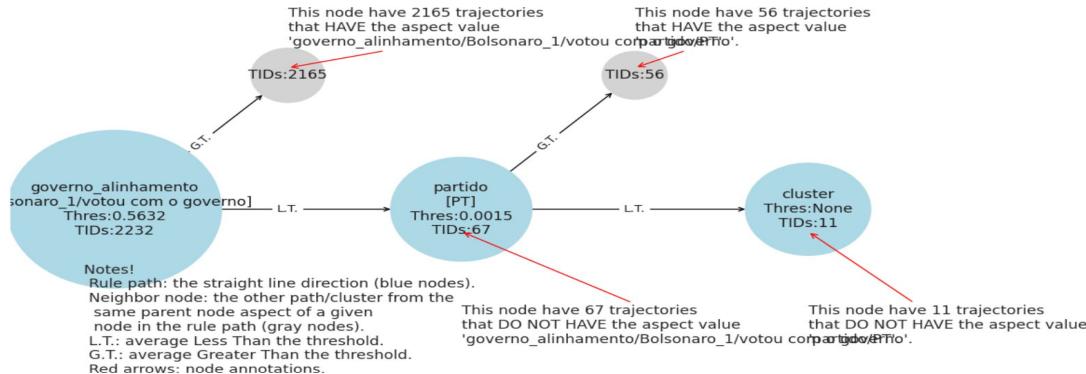
- This is a cluster with few number of votes of deputies from PT party that voted against the government on PL and PDL propositions.
- Cluster with low occurrences. Ghosting deputies trajectory.
- This group has, on avg, **$1.14\% \pm 0.35\%$** of presence during the period with a coefficient of variance equal to **30.7%** (very high).

Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Josias Gomes	2	1	2	0.94	22/10/19 to 22/10/2019
Merlong Solano	5	1	2	0.94	29/10/2019 to 30/10/2019
Márcio Macêdo	1	1	3	1.55	27/04/2022 to 27/04/2022

3.2.1. Bolsonaro government



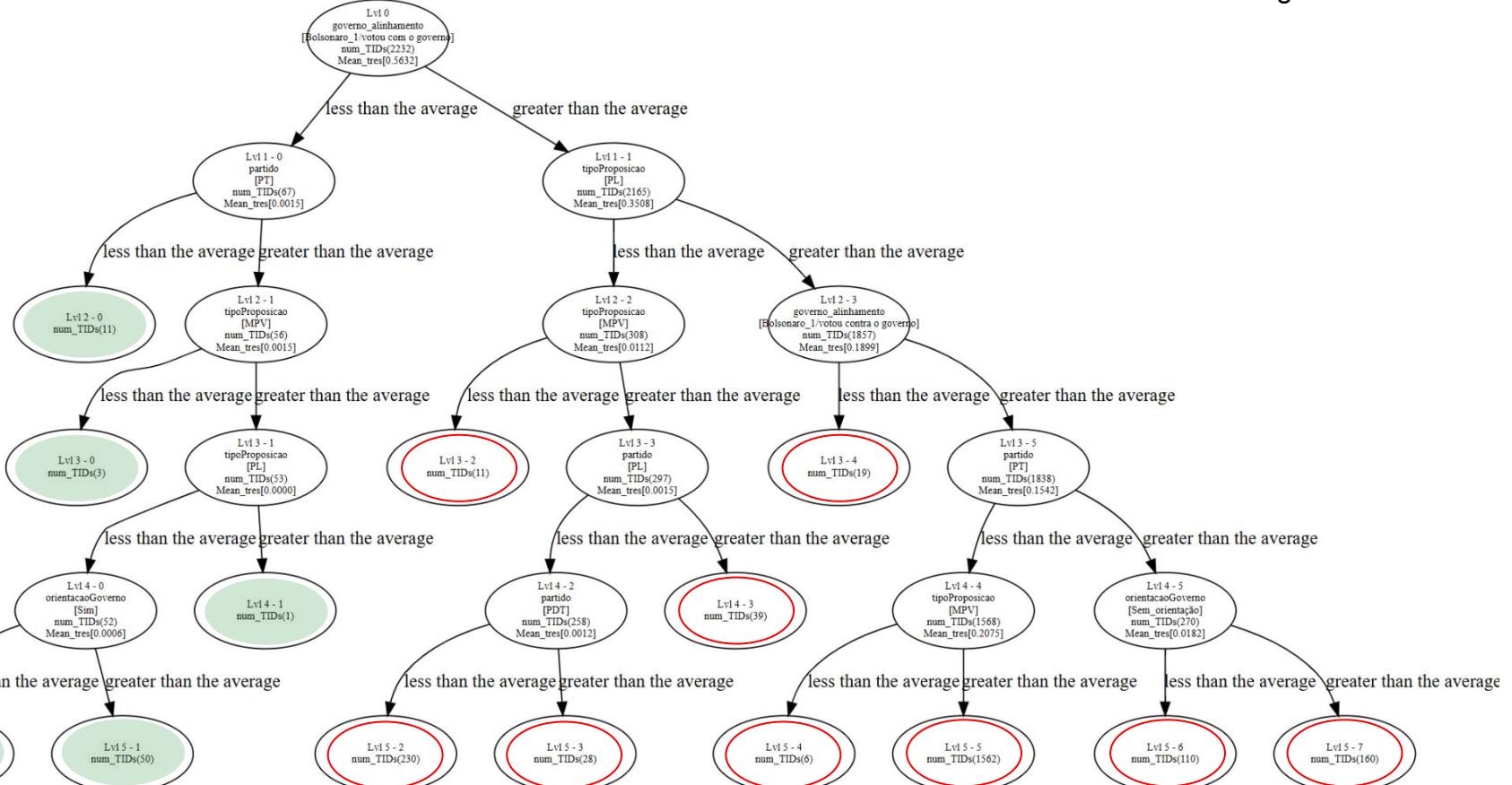
3.2.1. Bolsonaro government



- This is a cluster where the majority of deputies are from PCdoB party. Furthermore, 97.37% of the votes were against the government as well as to obstruct mainly for MPV and PEC propositions.
- The majority of votes was during one week for one month
- 84.68% (94) of votes against the government occurred in the 1° semester of 2020.
- This group has, on avg, **48.03%±27.35%** of presence during the period with a coefficient of variance equal to **56.94%** (very high).

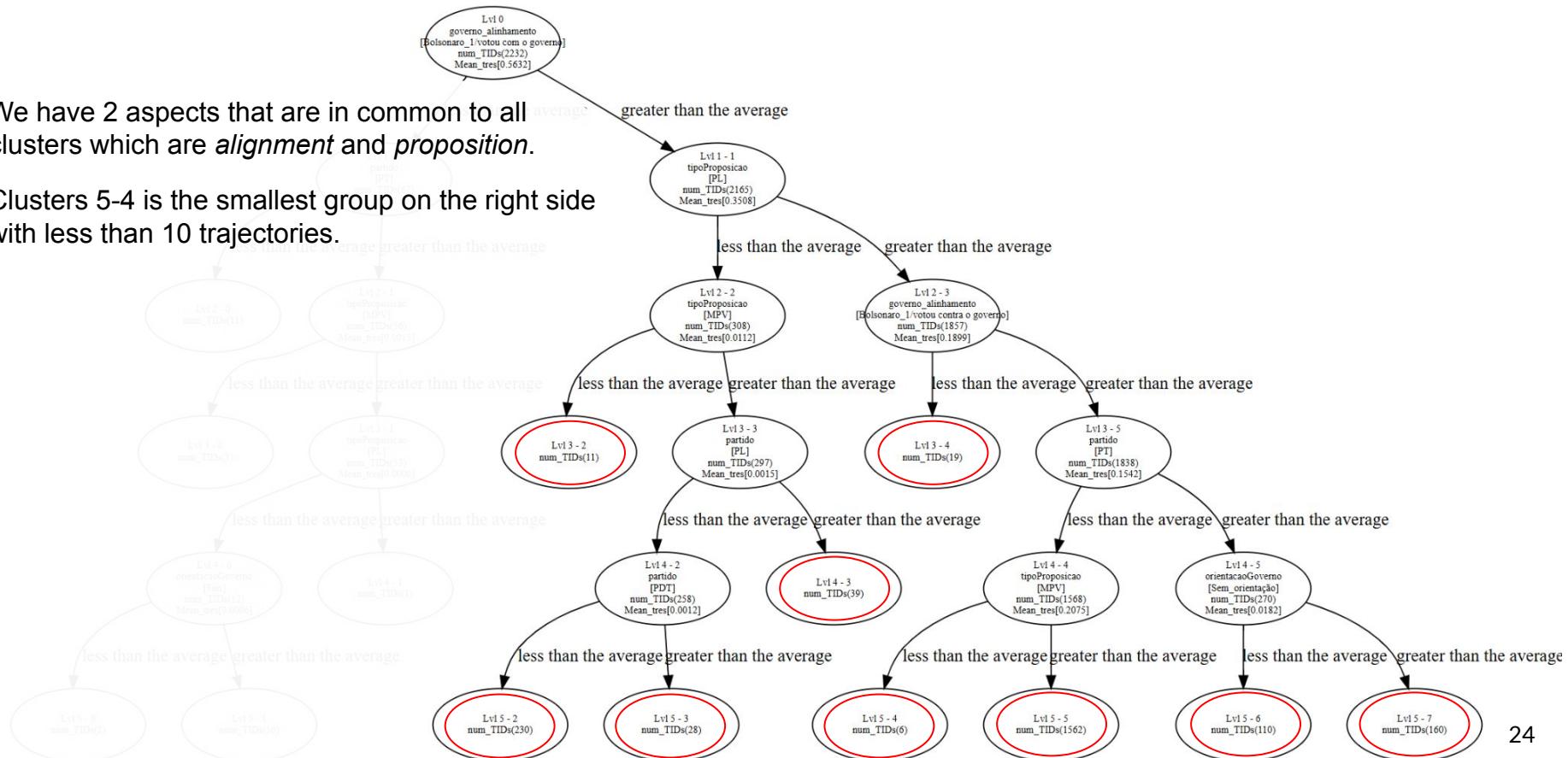
3.2.1. Bolsonaro government

- There are 9 clusters on the right side of the tree.



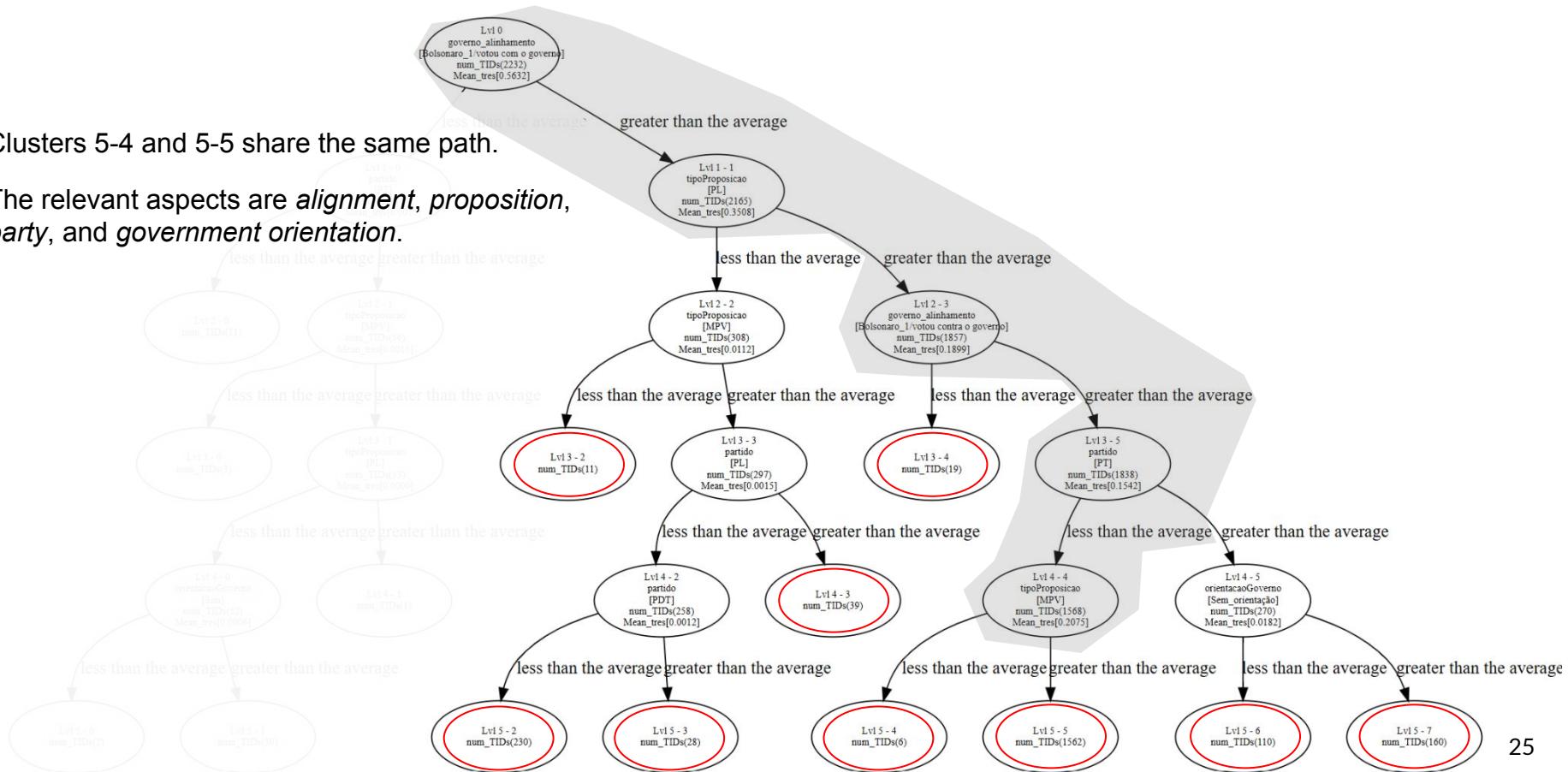
3.2.1. Bolsonaro government

- We have 2 aspects that are in common to all clusters which are *alignment* and *proposition*.
- Clusters 5-4 is the smallest group on the right side with less than 10 trajectories.



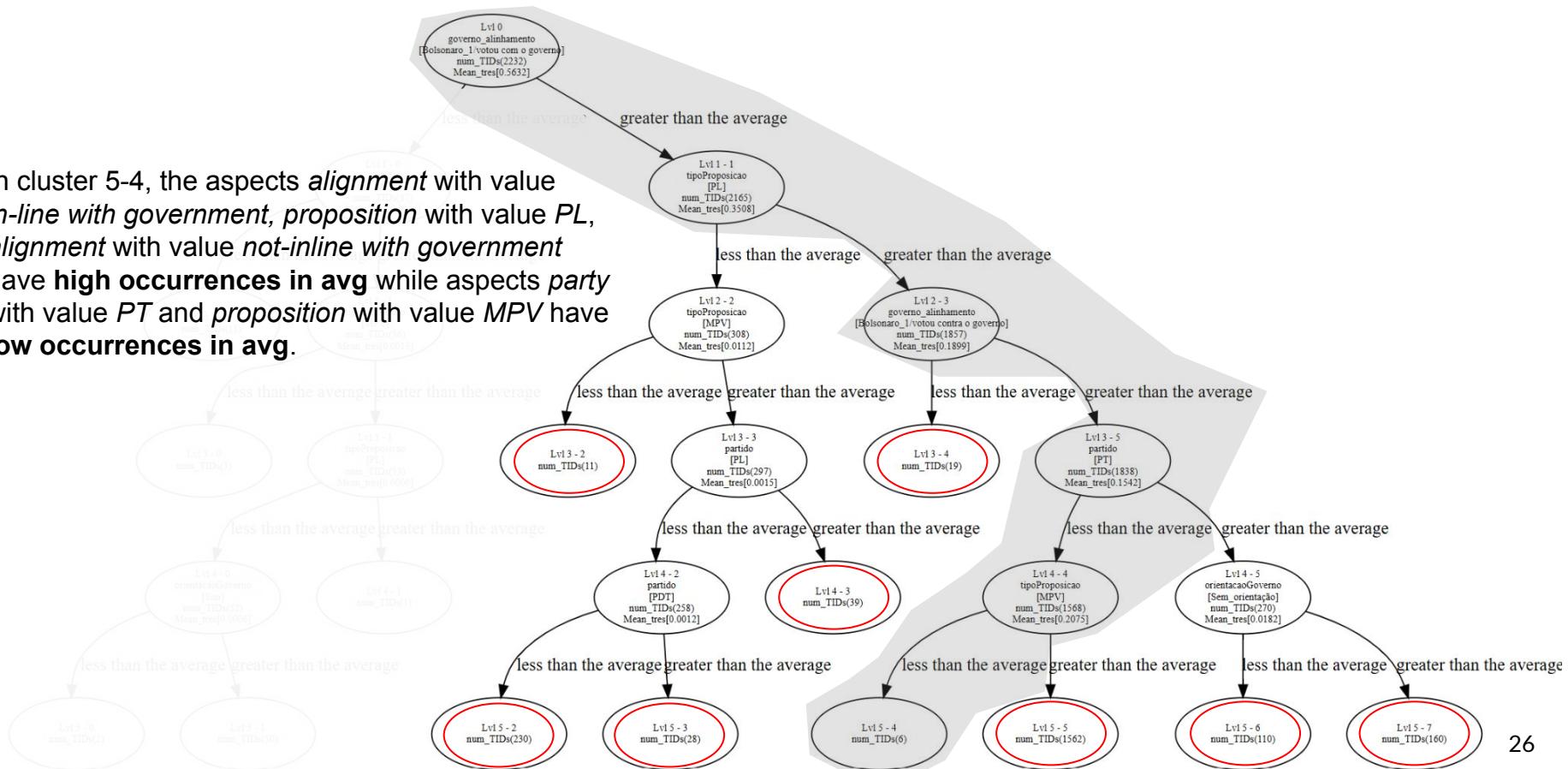
3.2.1. Bolsonaro government

- Clusters 5-4 and 5-5 share the same path.
- The relevant aspects are *alignment, proposition, party, and government orientation*.



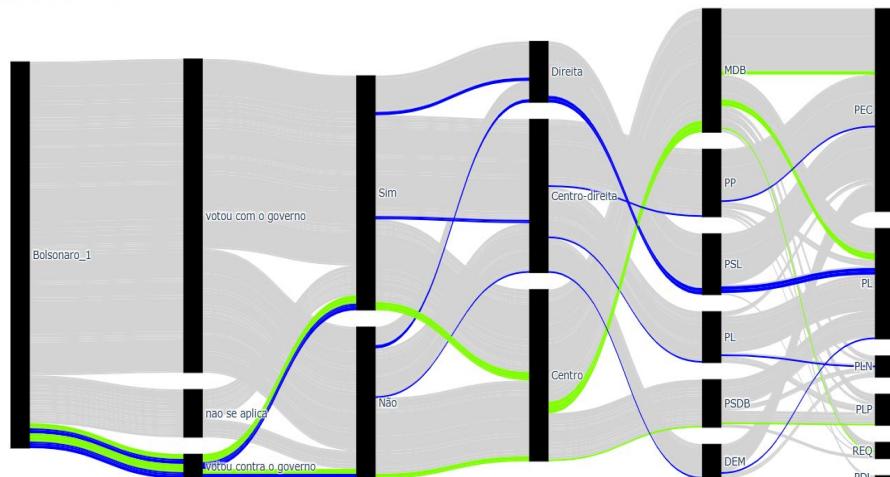
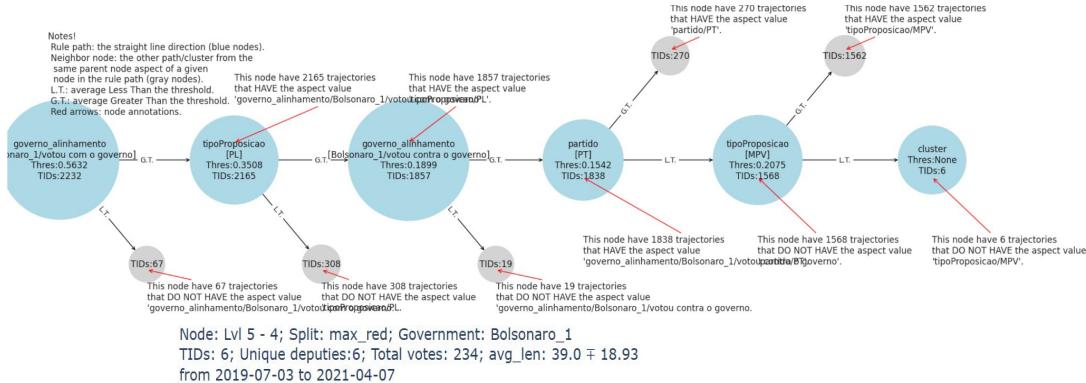
3.2.1. Bolsonaro government

- In cluster 5-4, the aspects *alignment with value in-line with government*, *proposition with value PL*, *alignment with value not-inline with government* have **high occurrences in avg** while aspects *party with value PT* and *proposition with value MPV* have **low occurrences in avg**.



3.2.1. Bolsonaro government

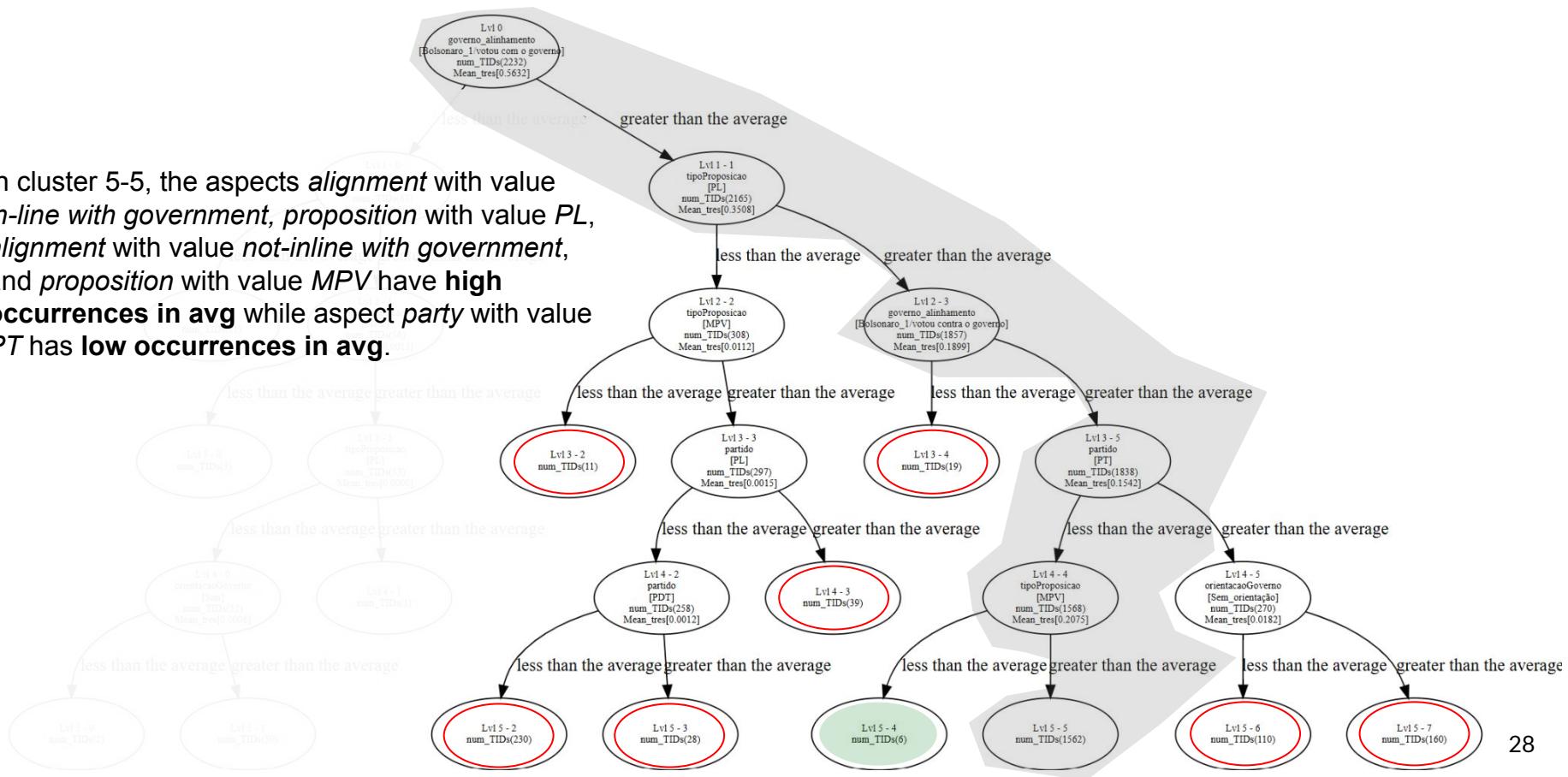
- This is a cluster where the majority of votes are in line with the government (93.59%). The deputies spans from right to center regarding the political spectrum where the mainly votes are on PEC and PL propositions.
- The majority of votes were in the 2º semester of 2019 (87.61%).
- This group has, on avg, **$18.11\% \pm 9.02\%$** of presence during the period with a coefficient of variance equal to **49.81%** (very high).



Opposition						
Deputy	Party	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Elcione Barbalho	MDB	6	1	75	35.21	3/7/19 to 17/12/19
Guilherme Mussi	PP	6	1	41	19.25	3/7/19 to 17/12/19
Marcelo Antônio	PSL	2	1	37	17.37	9/7/19 to 7/08/19
Rodrigo Maia	DEM	4	1	21	9.86	10/7/19 to 10/12/19
Patricia Ferraz	PL	2	1	21	14.55	9/12/19 to 17/12/19
Pedro Lima	PSDB	6	1	29	12.45	23/3/21 to 7/4/21

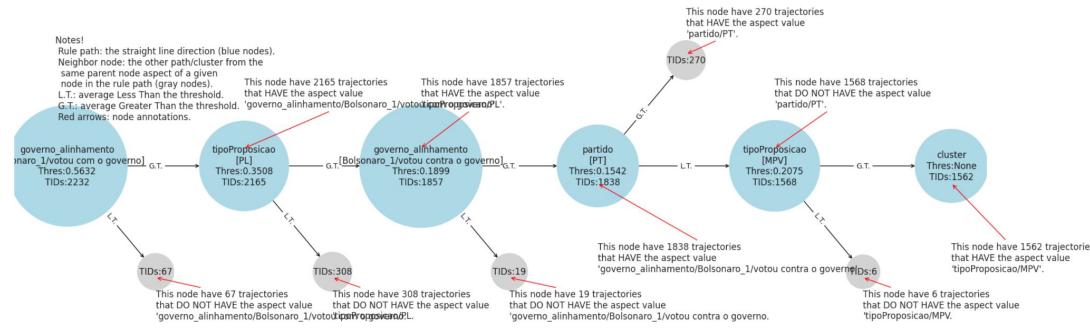
3.2.1. Bolsonaro government

- In cluster 5-5, the aspects *alignment with value in-line with government*, *proposition with value PL*, *alignment with value not-inline with government*, and *proposition with value MPV* have **high occurrences in avg** while aspect *party* with value *PT* has **low occurrences in avg**.

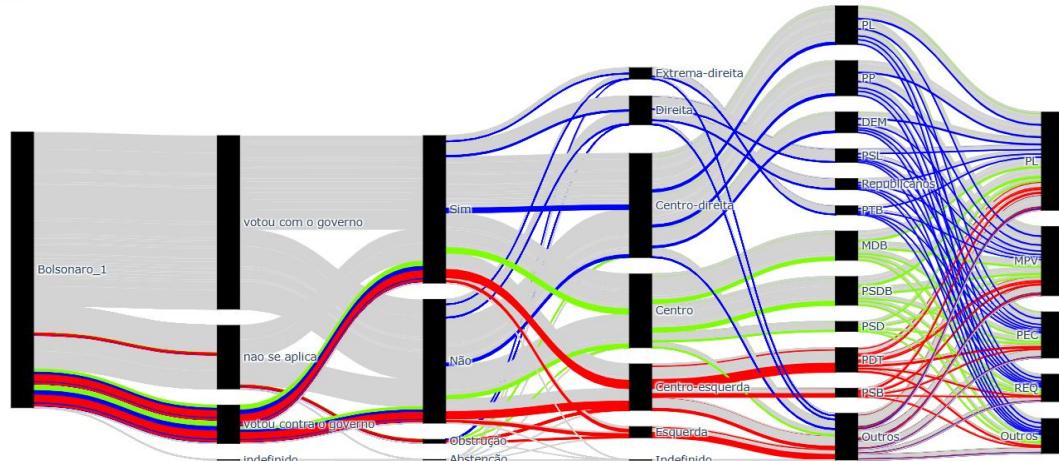


3.2.1. Bolsonaro government

- This is a cluster where the majority of votes are in line with the government (84.58%). The deputies spans from right to center regarding the political spectrum where the mainly votes are on PL and MPV propositions.
- 52.28% of the total votes are from parties that have a right spectrum alignment. It is the biggest cluster in number of trajectories.
- Regarding the votes against the government (42415), 35.68% occurred in the 2º semester of 2021, where 57% of those votes occurred in 2021.
- This group has, on avg, $75.37\pm18.58\%$ of presence during the period with a coefficient of variance equal to 24.65% (high).

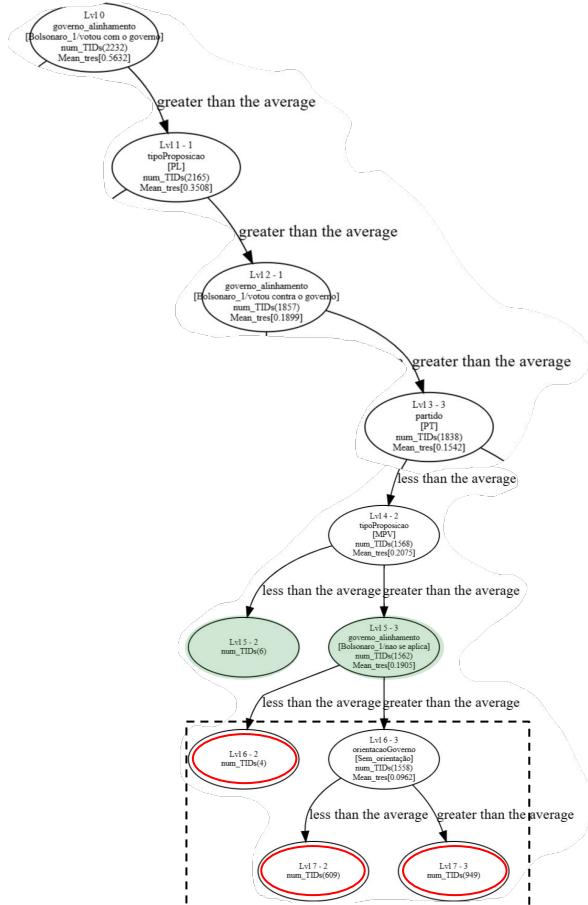


Node: Lvl 5 - 5; Split: max_red; Government: Bolsonaro_1
 TIDs: 1562; Unique deputies:477; Total votes: 277187; avg_len: 177.46 ± 92.14
 from 2019-02-12 to 2022-04-27



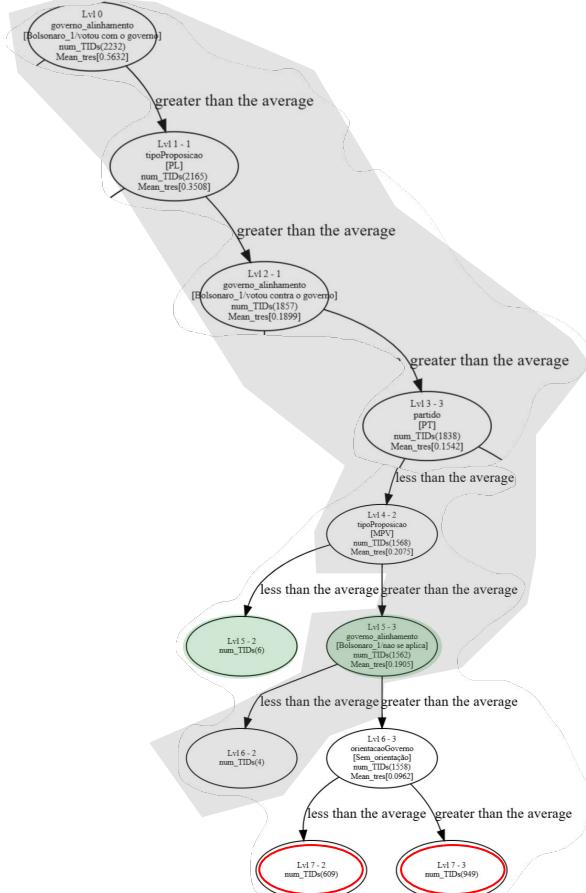
3.2.1. Bolsonaro government: expanding cluster 5-5

- Node 5-5 is the biggest cluster in this dataset.
- Expanding it two levels generates 3 clusters.



3.2.1. Bolsonaro government: expanding cluster 5-5

- In cluster 6-2, the aspects *alignment* with value *in line with government*, *proposition* with value *PL*, *alignment* with value *not-inline with government*, and *proposition* with value *MPV* have **high occurrences in avg** while aspect *party* with value *PT*, and *alignment* with value *not applicable* have **low occurrences in avg**.



3.2.1. Bolsonaro government: expanding cluster 5-5

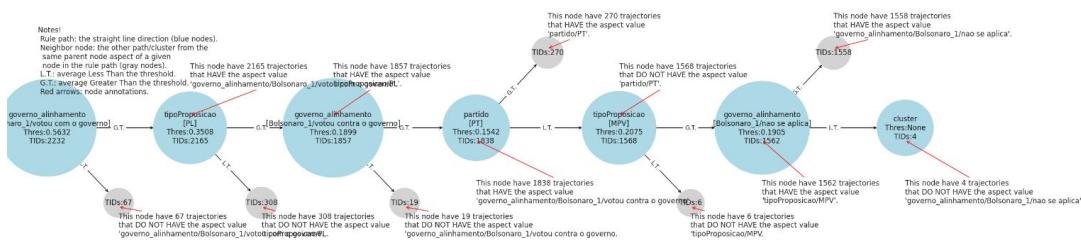
- This is a cluster where the majority of votes are in line with the government (91.01%), but voted against the government in other moment.

Moreover, this group focused on MPV proposition.

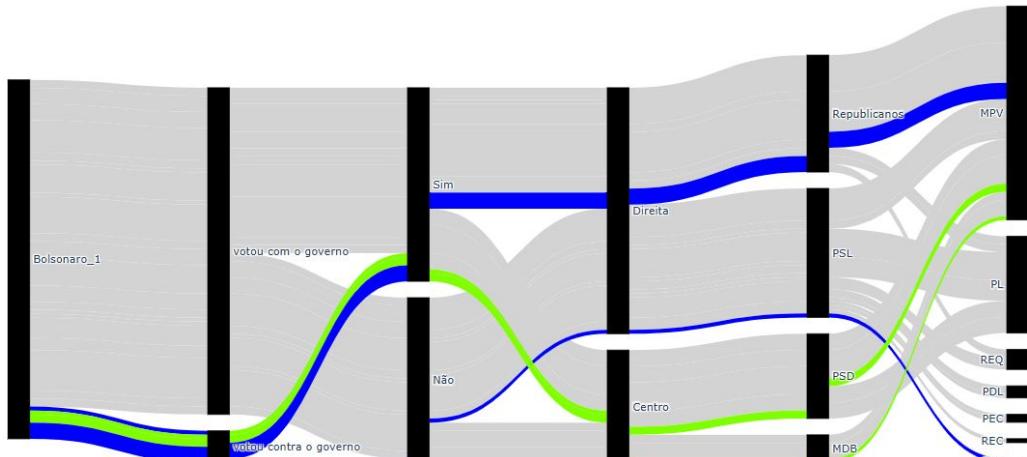
- Cluster with low occurrences meaning that the deputies are not frequent in parliament.
- This group has, on avg, **$11.1\% \pm 4.51\%$** of presence during the period with a coefficient of variance equal to **40.63%** (very high).

Opposition (at least one vote)

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Vitor Hugo	3	1	32	15.02	15/10/19 to 17/12/19
Maria Rosas	2	1	29	14.95	18/4/22 to 27/4/22
Eleuses Paiva	1	1	15	7.73	26/4/22 to 27/4/22
Renato Queiroz	1	1	13	6.7	26/4/22 to 27/4/22

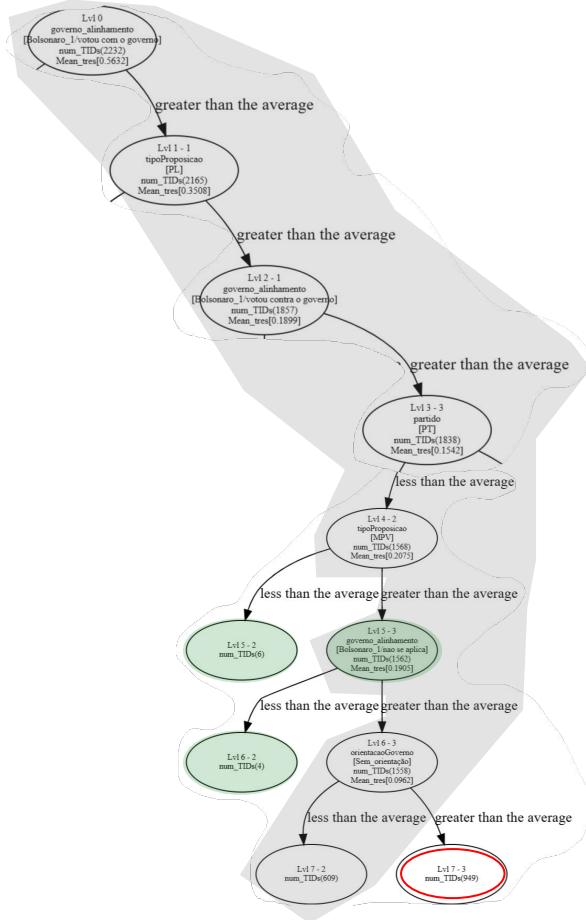


Node: Lvl 6 - 2; Split: max_red; Government: Bolsonaro_1
TIDs: 4; Unique deputies: 4; Total votes: 89; avg_len: 22.25 \pm 9.64
from 2019-10-15 to 2022-04-27



3.2.1. Bolsonaro government: expanding cluster 5-5

- In cluster 7-2, the aspects *alignment* with value *in line with government*, *proposition* with value *PL*, *alignment* with value *not-inline with government*, *proposition* with value *MPV*, and *alignment* with value *not applicable* have **high occurrences in avg** while aspect *party* with value *PT*, and *government orientation* with value *without orientation* have **low occurrences in avg**.



3.2.1. Bolsonaro government: expanding cluster 5-5

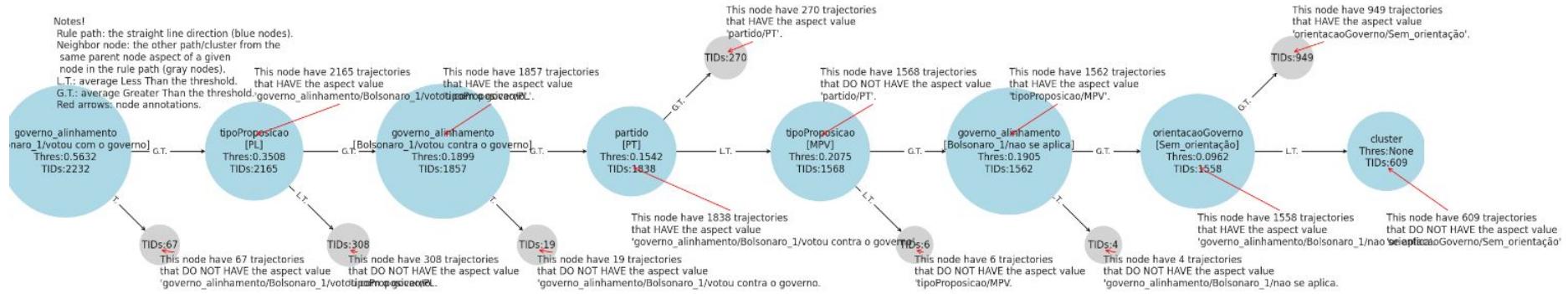
Notes!

Rule path: the straight line direction (blue nodes).

Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).

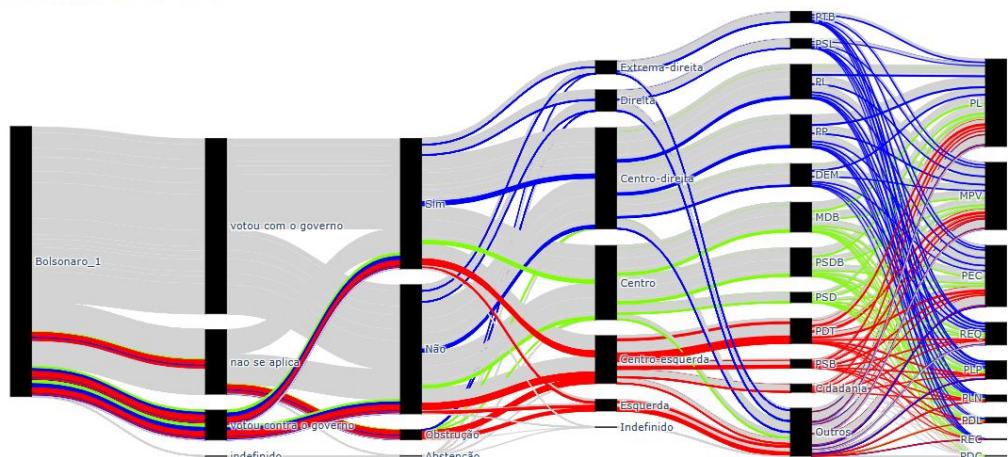
L.T.: average Less Than the threshold.

G.T.: average Greater Than the threshold.
Red arrows: node annotations.



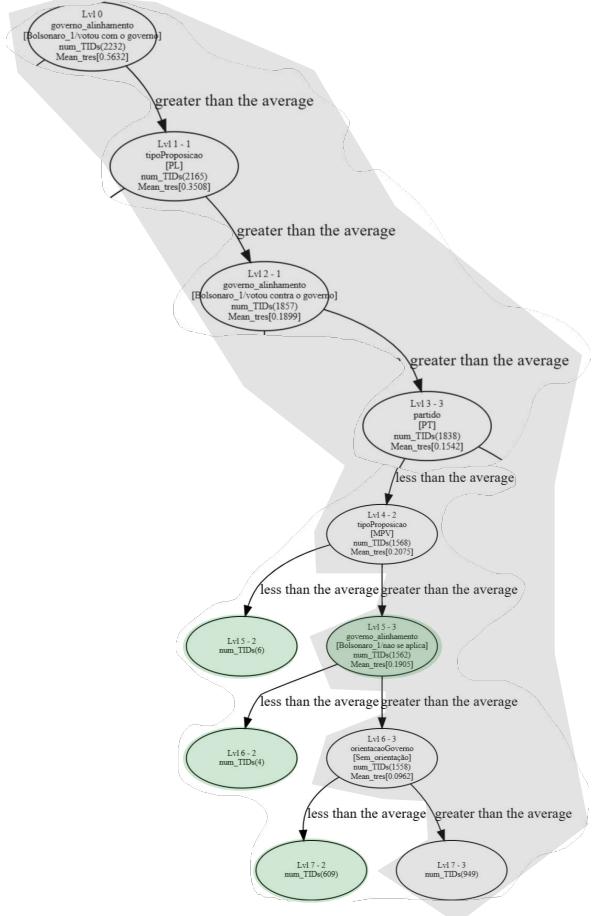
- This is a cluster where the majority of votes are in line with the government (85.23%), but also had votes against the government. Moreover, this group focused to participate mainly on PL, MPV, and PEC propositions.**
- This group has, on avg, **71.41%±18.92%** of presence during the period with a coefficient of variance equal to **26.49%** (high dispersion).
- 99.41%** of the supported votes and **99.21%** of the against votes, both occurred in 2019.

Node: Lvl 7 - 2; Split: max_red; Government: Bolsonaro_1
TIDs: 609; Unique deputies:364; Total votes: 70960; avg_len: 116.52 ± 49.3
from 2019-02-12 to 2022-04-27



3.2.1. Bolsonaro government: expanding cluster 5-5

- In cluster 7-3, the aspects *alignment* with value *in line with government*, *proposition* with value *PL*, *alignment* with value *not-inline with government*, *proposition* with value *MPV*, *alignment* with value *not applicable*, and *government orientation* with value *without orientation* have **high occurrences in avg** while aspect *party* with value *PT* has **low occurrences in avg**.



3.2.1. Bolsonaro government: expanding cluster 5-5

Notes!

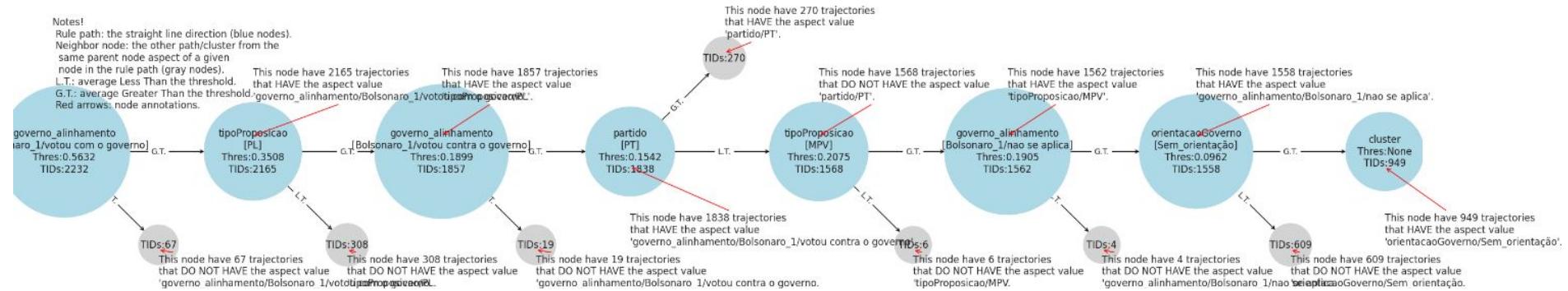
Rule path: the straight line direction (blue nodes).

Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).

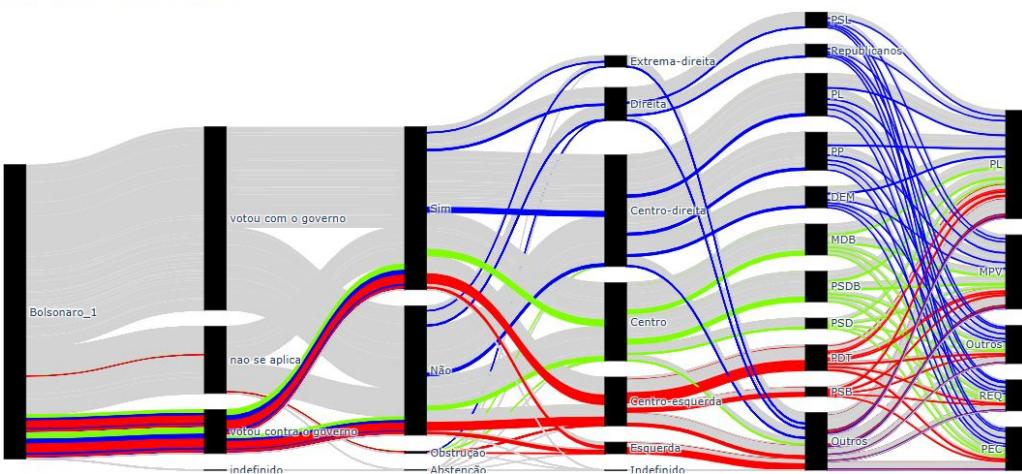
L.T.: average Less Than the threshold.

G.T.: average Greater Than the threshold.

Red arrows: node annotations.

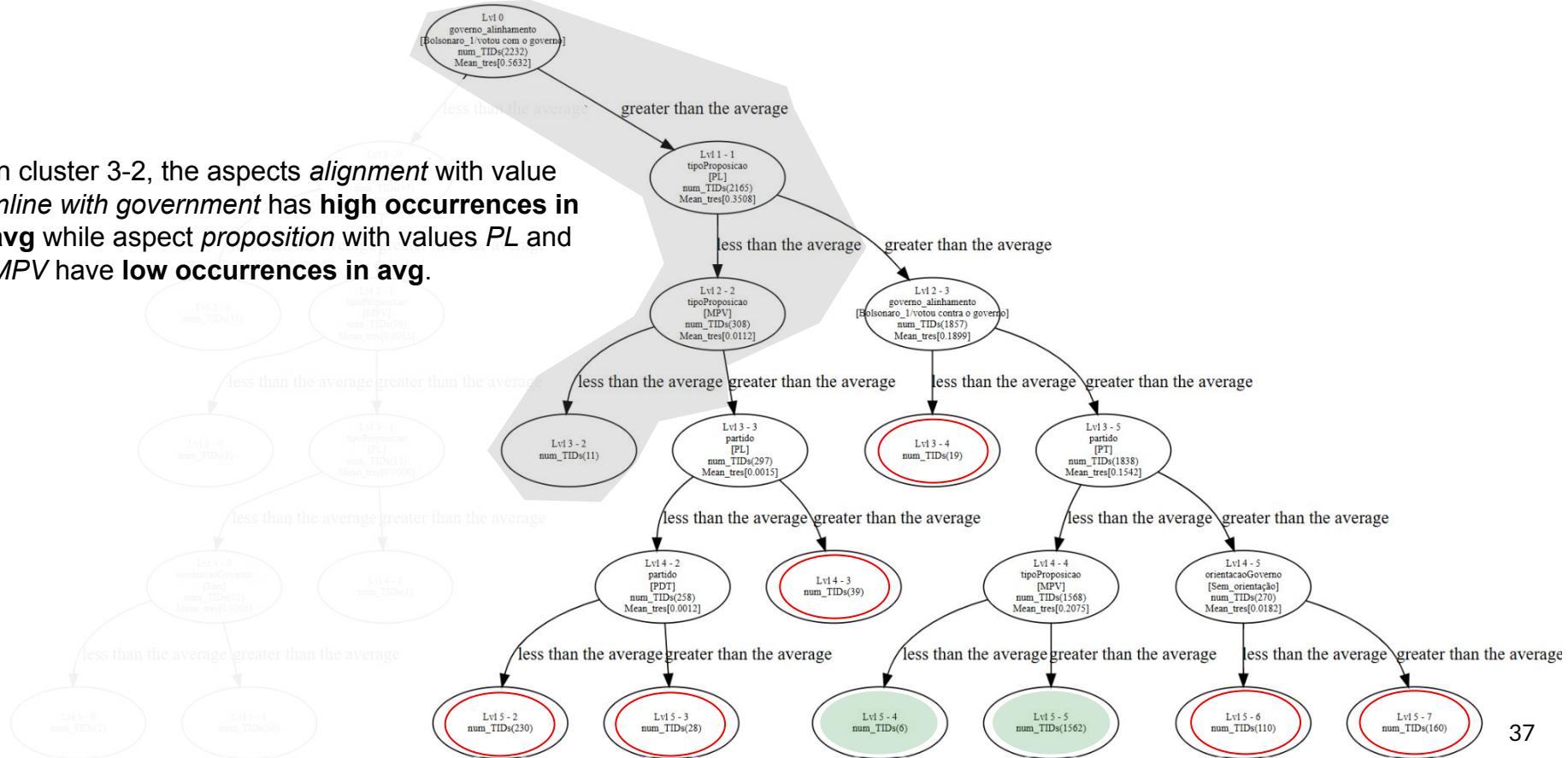


- This is a cluster where the majority of votes are in line with the government (84.51%), but also had votes against the government. Moreover, this group focused to participate mainly on PL, and MPV propositions.**
- This group has, on avg, **78.19%±17.42%** of presence during the period with a coefficient of variance equal to **22.28%** (high dispersion).
- 73.75%** (128479) of the supported votes and **75.61%** (24141) of the against votes, both occurred in 2021.



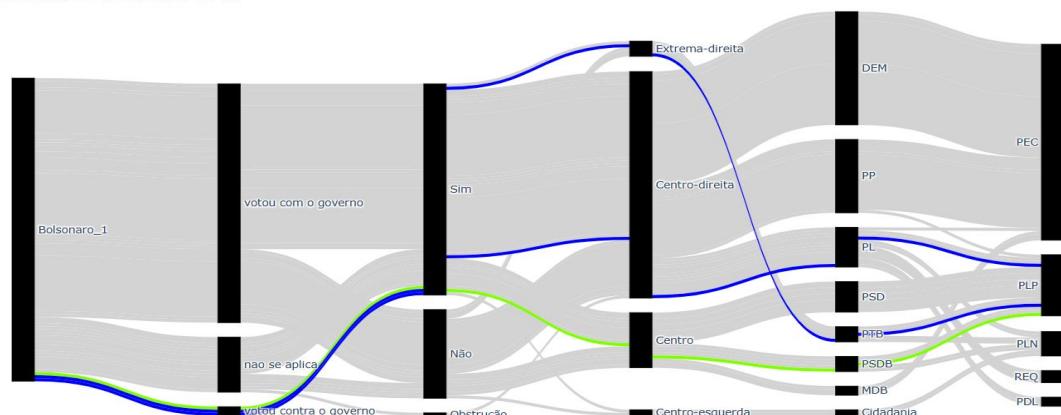
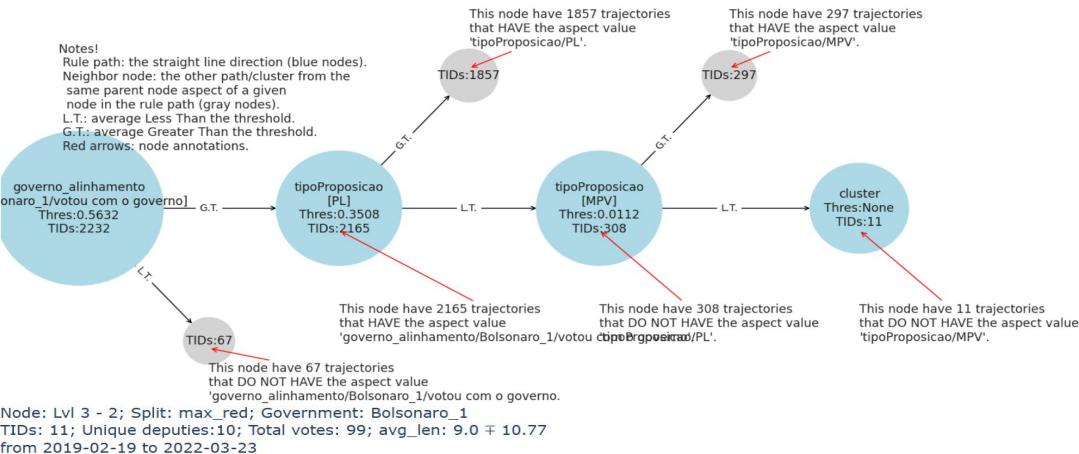
3.2.1. Bolsonaro government

- In cluster 3-2, the aspects *alignment with value inline with government* has **high occurrences in avg** while aspect *proposition* with values *PL* and *MPV* have **low occurrences in avg**.



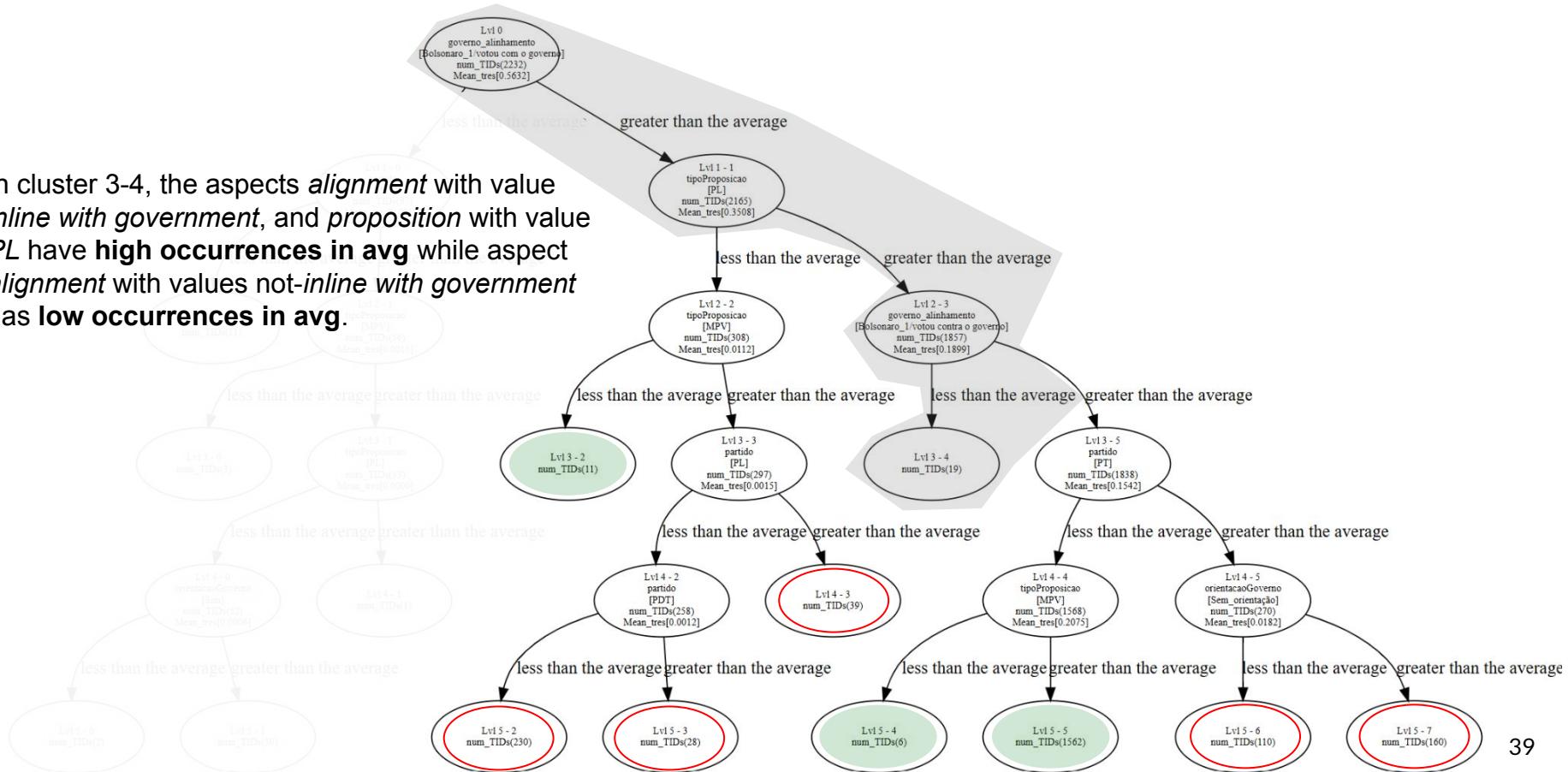
3.2.1. Bolsonaro government

- This is a cluster where the majority of votes are in line with the government (95.96%). Extreme-right and Center-right represents 79.8% of the votes. Moreover, PEC proposition was the focus of this group with 64.65% of the votes while PL and MPV did not appears.
- 57.89% (55) of the supported votes occurred in 2019.
- This group has, on avg, $4.16\% \pm 4.99\%$ of presence during the period with a coefficient of variance equal to 119.95% (very high).



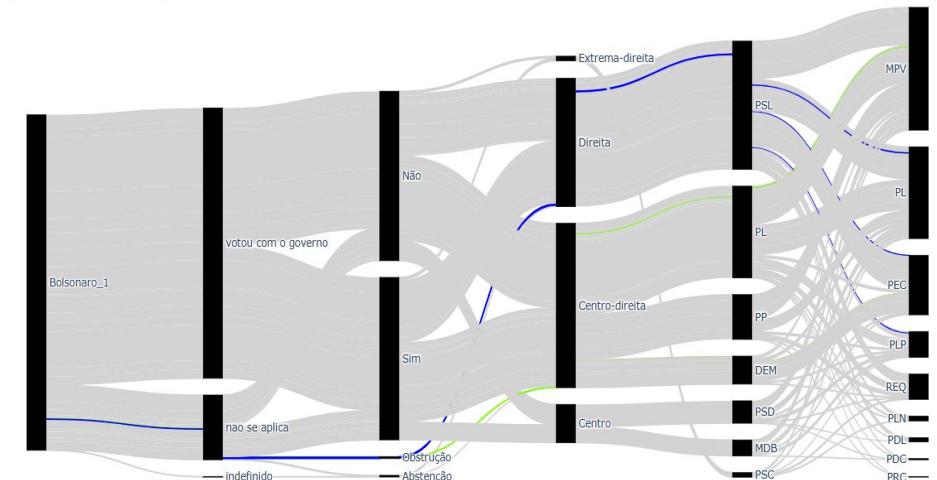
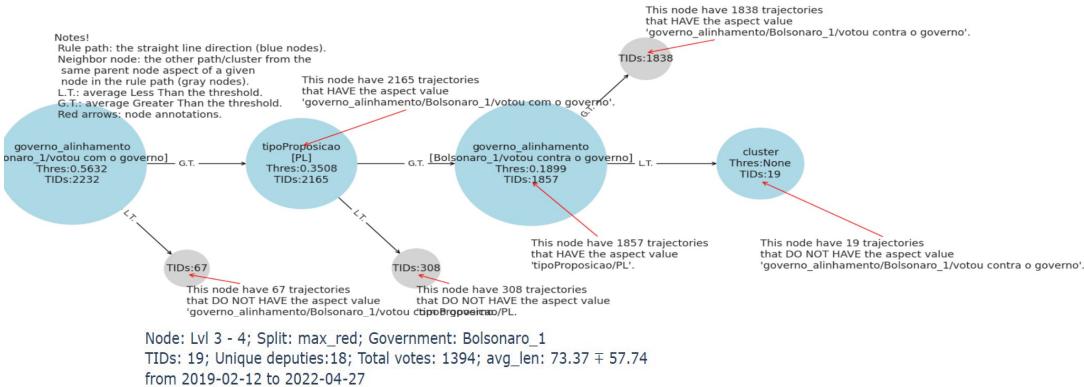
3.2.1. Bolsonaro government

- In cluster 3-4, the aspects *alignment* with value *inline with government*, and *proposition* with value *PL* have **high occurrences in avg** while aspect *alignment* with values *not-inline with government* has **low occurrences in avg**.



3.2.1. Bolsonaro government

- This is a cluster where the majority of votes are inline with the government (99.29%). The parties aligned with the right political spectrum represents 88.59% of the votes. Moreover, PL proposition was the focus of this group
- No presence of parties aligned with the left political spectrum. Moreover, **66.23%** (918) of the supported votes occurred in 2019.
- This group has, on avg, **44.52% \pm 31.85** of presence during the period with a coefficient of variance equal to **71.54%** (very high).

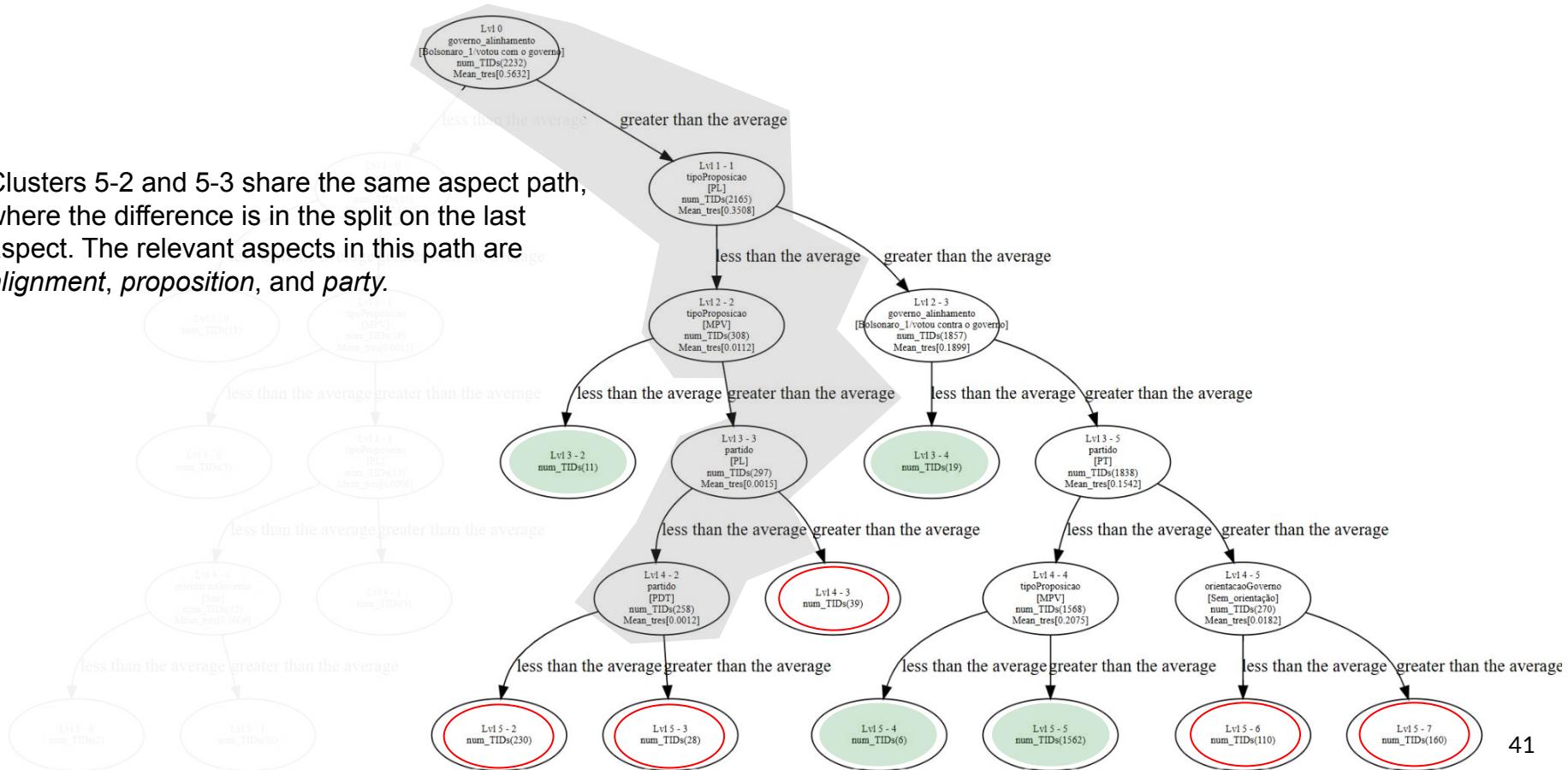


Opposition

Deputy	Party	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Cabo Amaral	PSL	2	2	99	90	12/2/19 to 26/6/19
Loester Trutis	PSL	3	1	131	61.5	3/7/19 to 4/12/19
Bilac Pinto	DEM	5	1	68	31.92	9/7/19 to 21/8/19
Major Hugo	PSL	1	1	76	35.68	9/7/19 to 1/10/19
Ricardo Pericar	PSL	1	1	77	36.15	7/8/19 to 22/10/19
Paulo Costa	PL	6	1	223	95.71	23/3/21 to 29/6/21

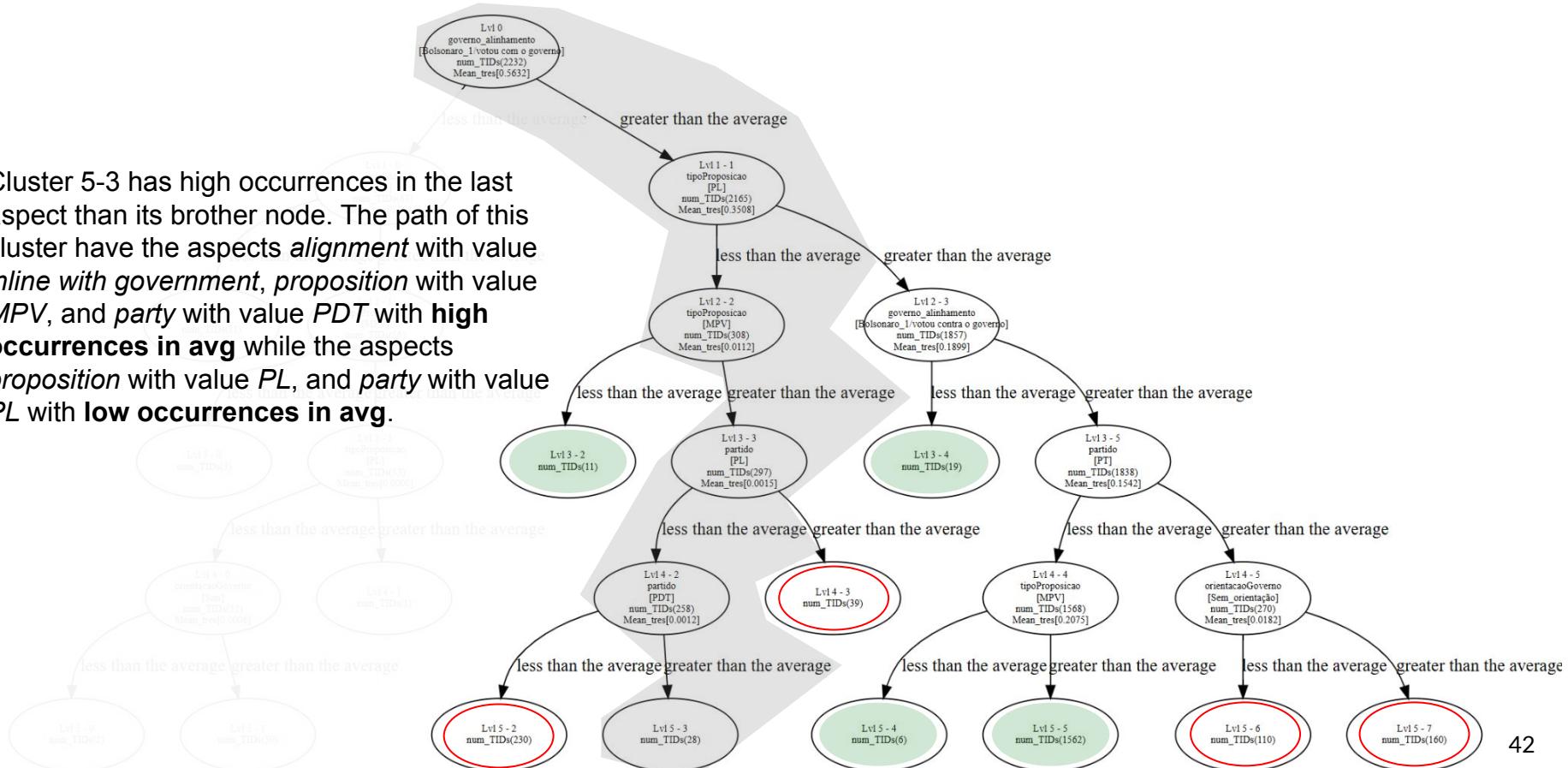
3.2.1. Bolsonaro government

- Clusters 5-2 and 5-3 share the same aspect path, where the difference is in the split on the last aspect. The relevant aspects in this path are *alignment, proposition, and party*.



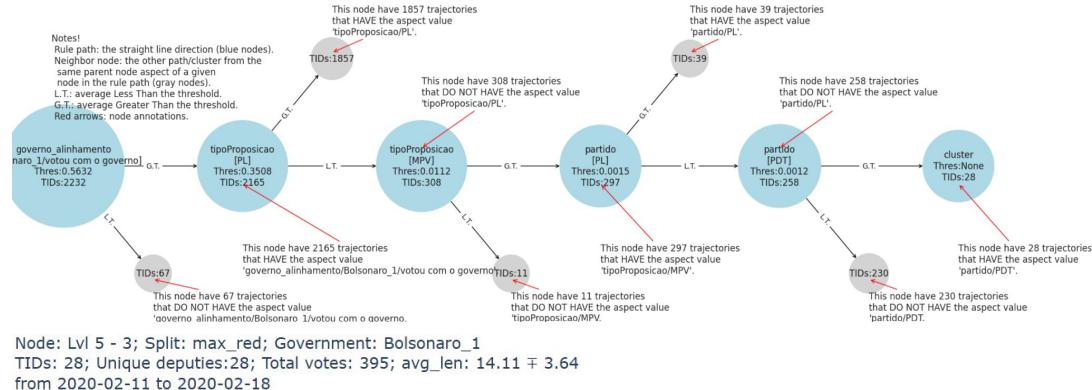
3.2.1. Bolsonaro government

- Cluster 5-3 has high occurrences in the last aspect than its brother node. The path of this cluster have the aspects *alignment* with value *inline with government*, *proposition* with value *MPV*, and *party* with value *PDT* with **high occurrences in avg** while the aspects *proposition* with value *PL*, and *party* with value *PL* with **low occurrences in avg**.



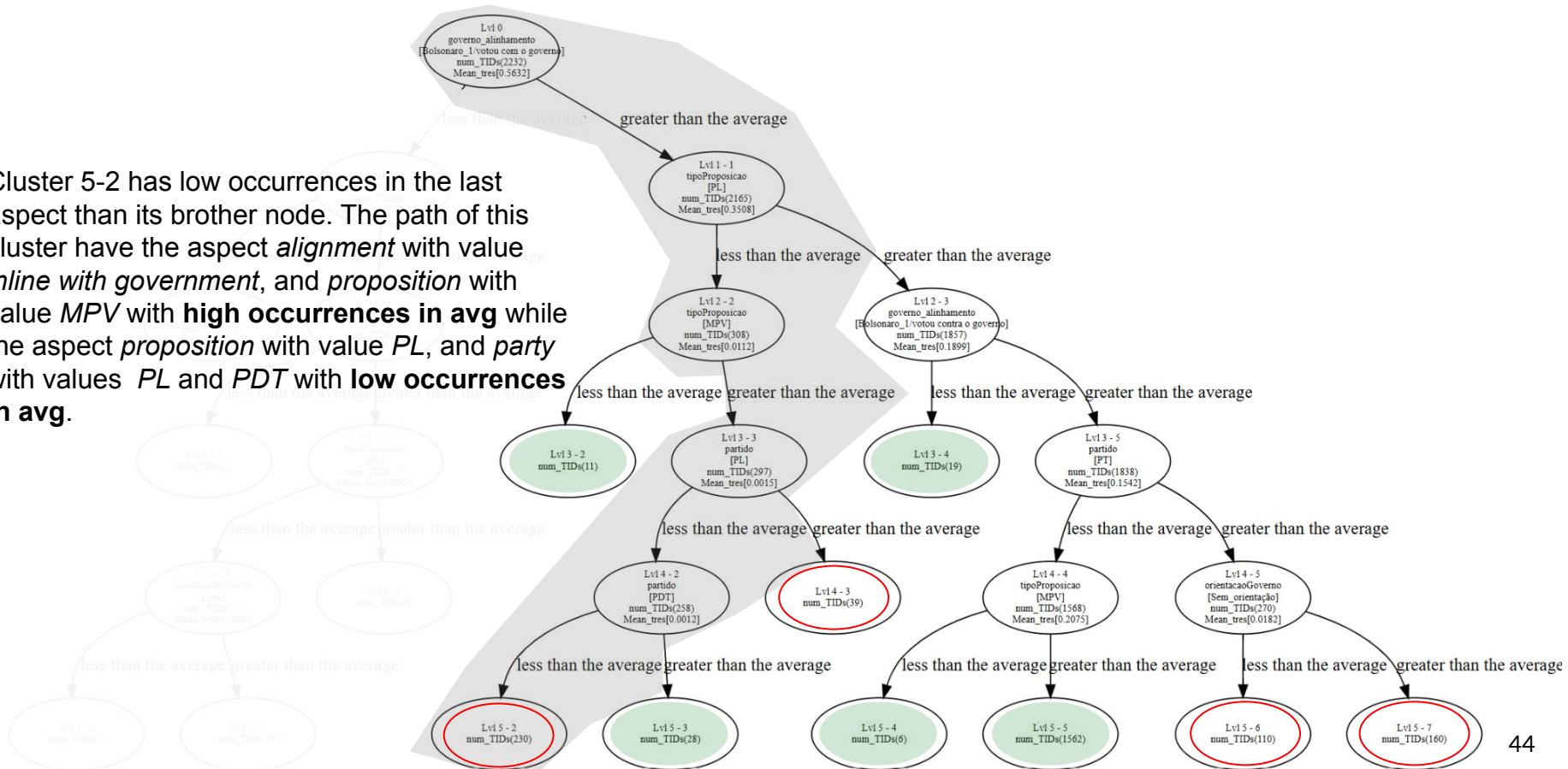
3.2.1. Bolsonaro government

- This is a cluster of deputies from PDT party that mainly voted in line with the government on MPV proposition.**
- 87.5% of PDT deputies participated in this cluster.**
20 of 28 deputies voted **at least once** against the government.
- This group has, on avg, $78.37\% \pm 20.25\%$ of presence during the period with a coefficient of variance equal to **25.84%** (high).**



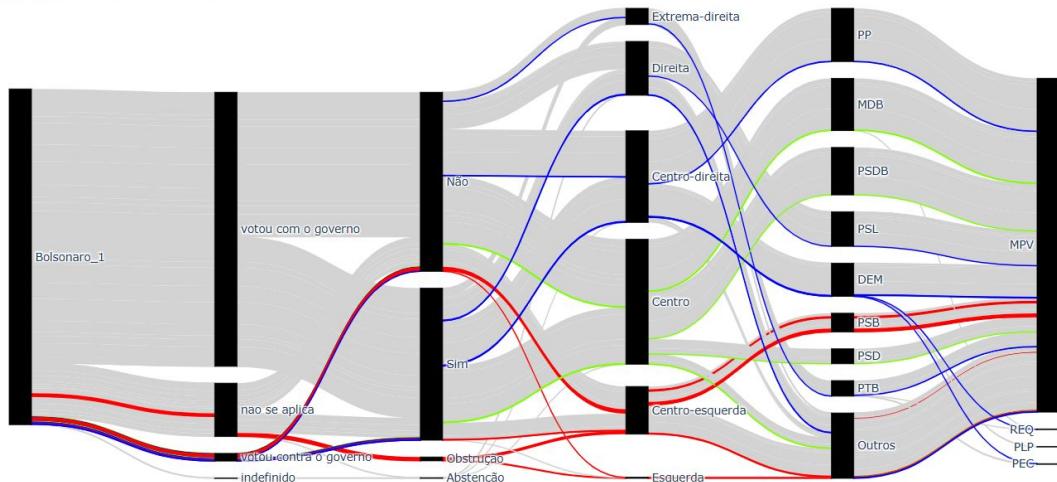
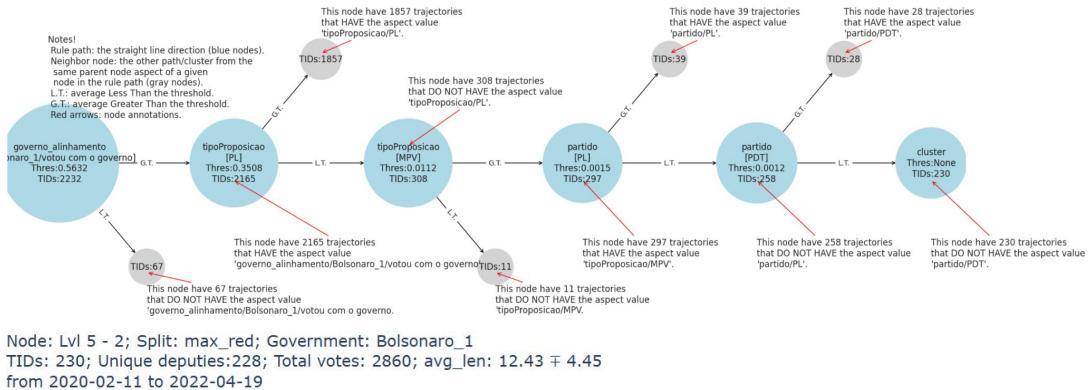
3.2.1. Bolsonaro government

- Cluster 5-2 has low occurrences in the last aspect than its brother node. The path of this cluster have the aspect *alignment* with value *inline with government*, and *proposition* with value *MPV* with **high occurrences in avg** while the aspect *proposition* with value *PL*, and *party* with values *PL* and *PDT* with **low occurrences in avg**.



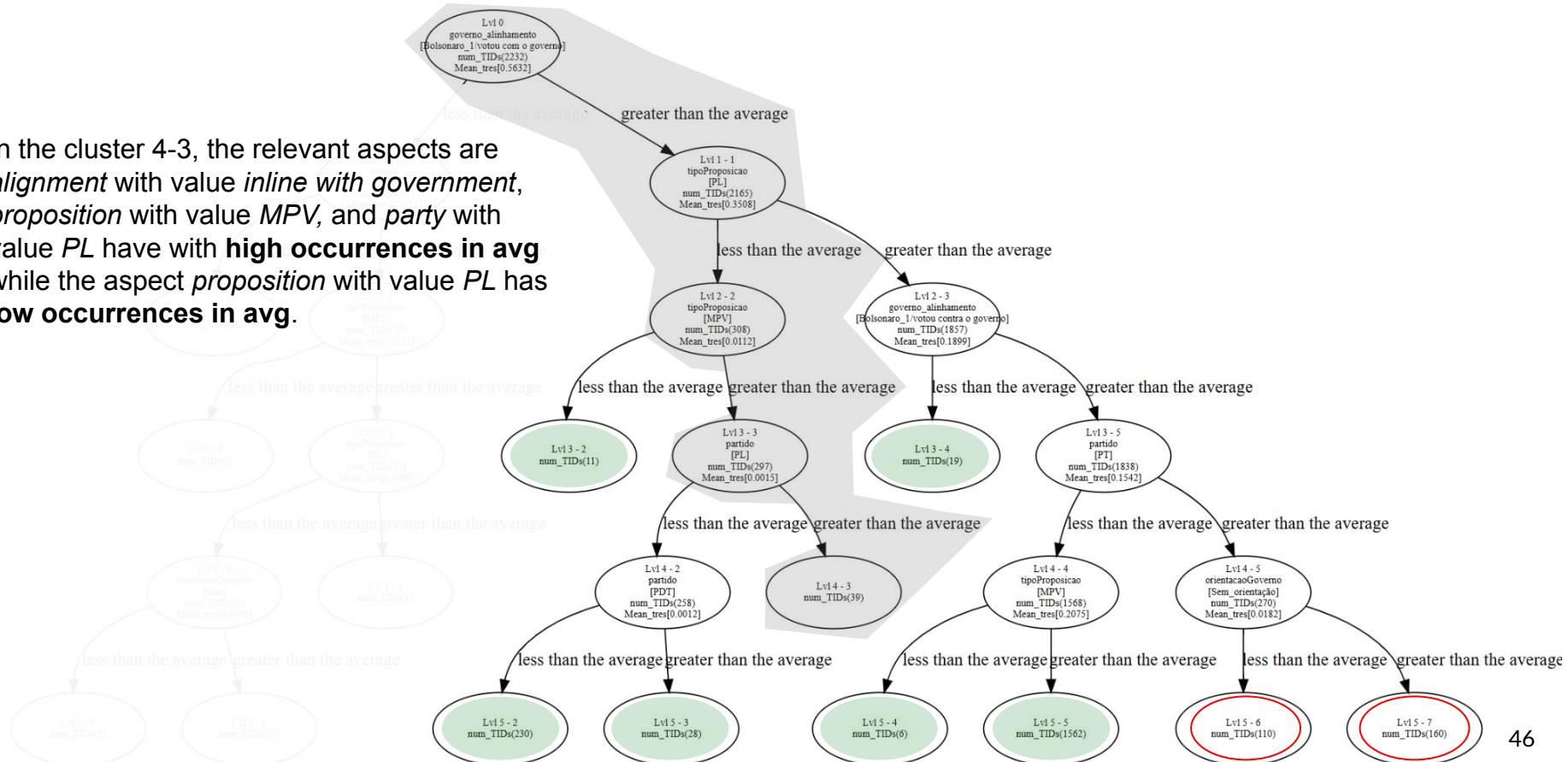
3.2.1. Bolsonaro government

- This is a cluster where the PL and PDT parties did not occurred, and the deputies mainly voted inline with the government on MPV proposition.
- The parties spanning from extreme-right to center represents **85.45%** of the votes.
- 40 of 228 deputies in this cluster **voted at least once against the government**.
 - **94.95%** (99) of that votes occurred in the 1º semester of 2020.
- This group has, on avg, **$68.14\% \pm 26.14\%$** of presence during the period with a coefficient of variance equal to **38.36%** (very high).



3.2.1. Bolsonaro government

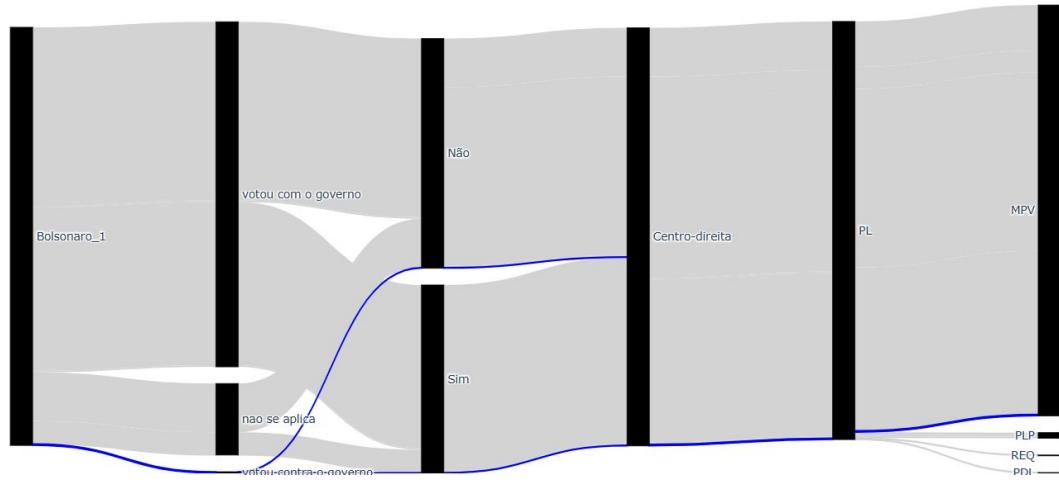
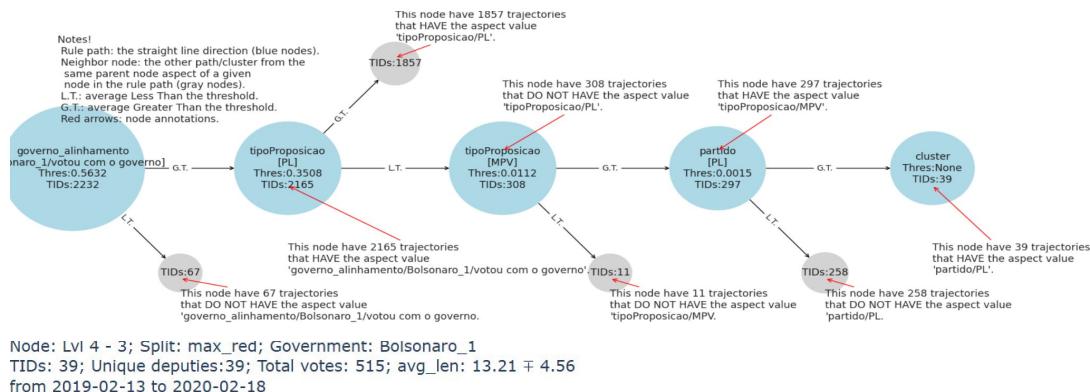
- In the cluster 4-3, the relevant aspects are *alignment with value inline with government, proposition with value MPV, and party with value PL have with high occurrences in avg while the aspect proposition with value PL has low occurrences in avg.*



3.2.1. Bolsonaro government

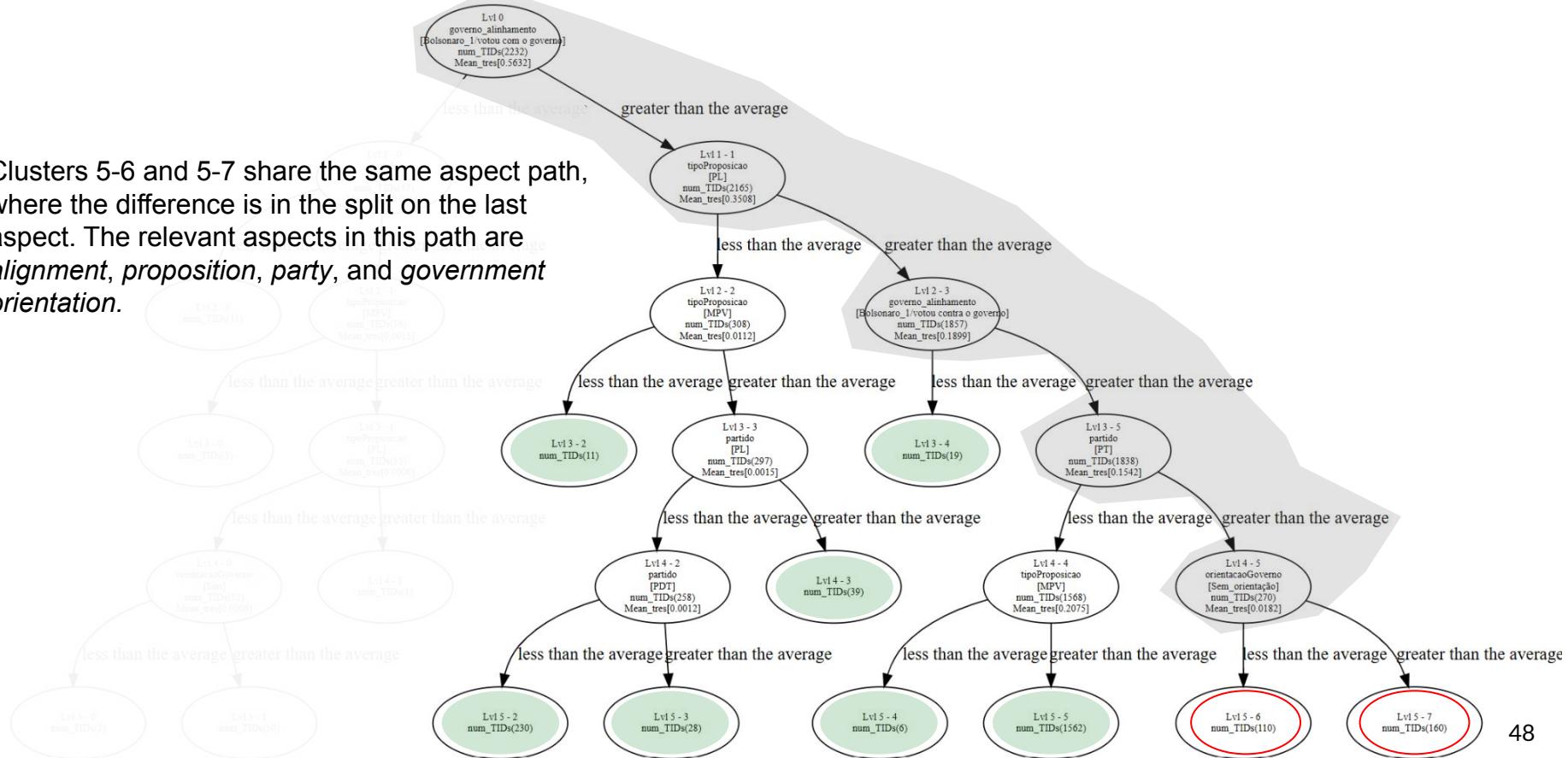
- This is a cluster of deputies from PL party that mainly voted inline with the government (99.61%) on MPV proposition.**
- 98.05% (503) of the supported votes occurred in 2020.**
- 2 of 39 deputies in this cluster voted at least once against the government.**
- This group has, on avg, $72.17\% \pm 27.22\%$ of presence during the period with a coefficient of variance equal to **37.72%** (very high).**

Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Abílio Santana	6	1	17	94.44	11/2/20 to 18/2/20
Lauriete	4	1	17	94.44	11/2/20 to 18/2/20



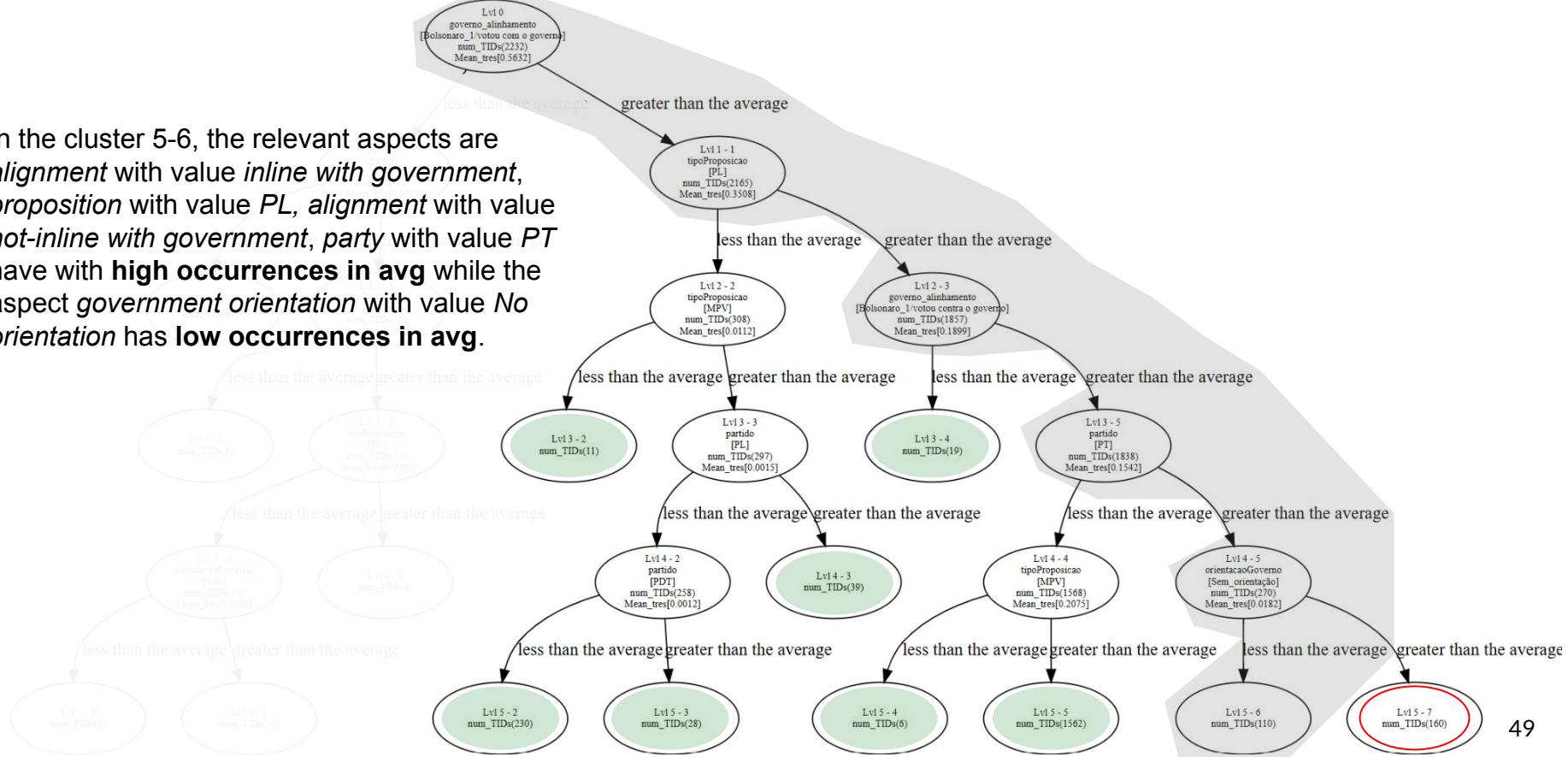
3.2.1. Bolsonaro government

- Clusters 5-6 and 5-7 share the same aspect path, where the difference is in the split on the last aspect. The relevant aspects in this path are *alignment, proposition, party, and government orientation*.



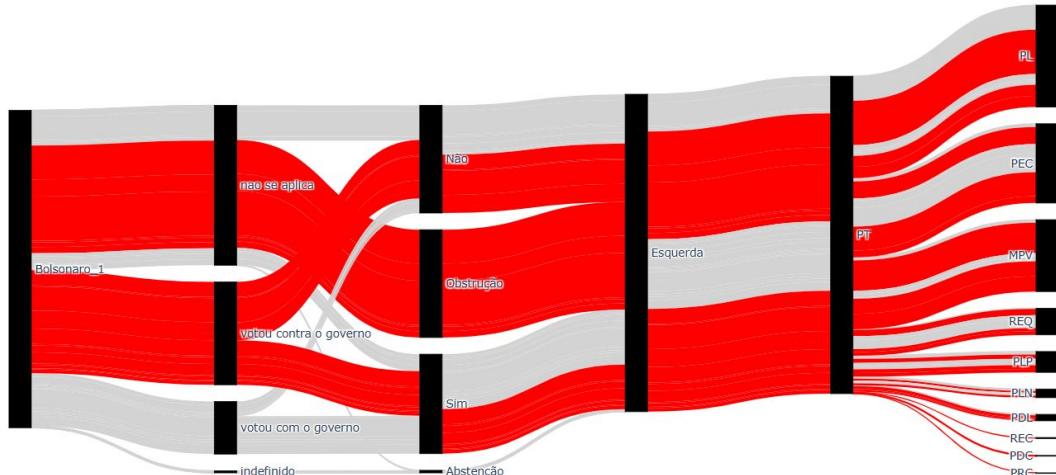
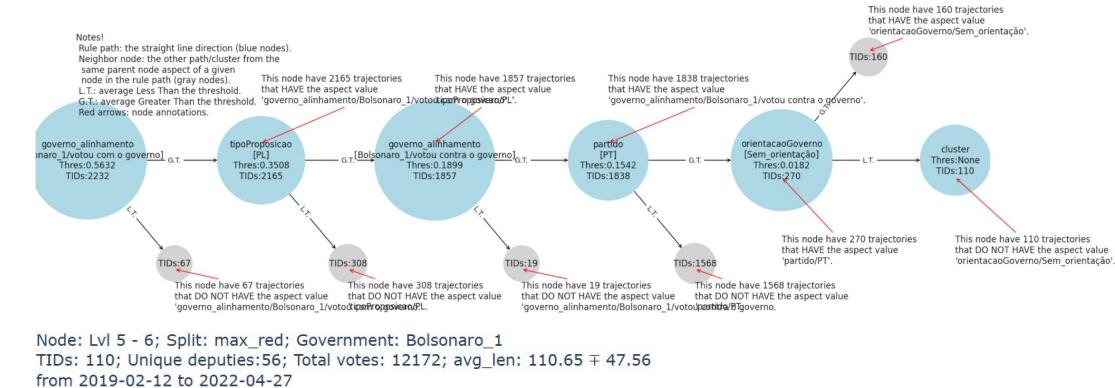
3.2.1. Bolsonaro government

- In the cluster 5-6, the relevant aspects are *alignment with value inline with government*, *proposition with value PL*, *alignment with value not-inline with government*, *party with value PT* have with **high occurrences in avg** while the aspect *government orientation* with value *No orientation* has **low occurrences in avg**.



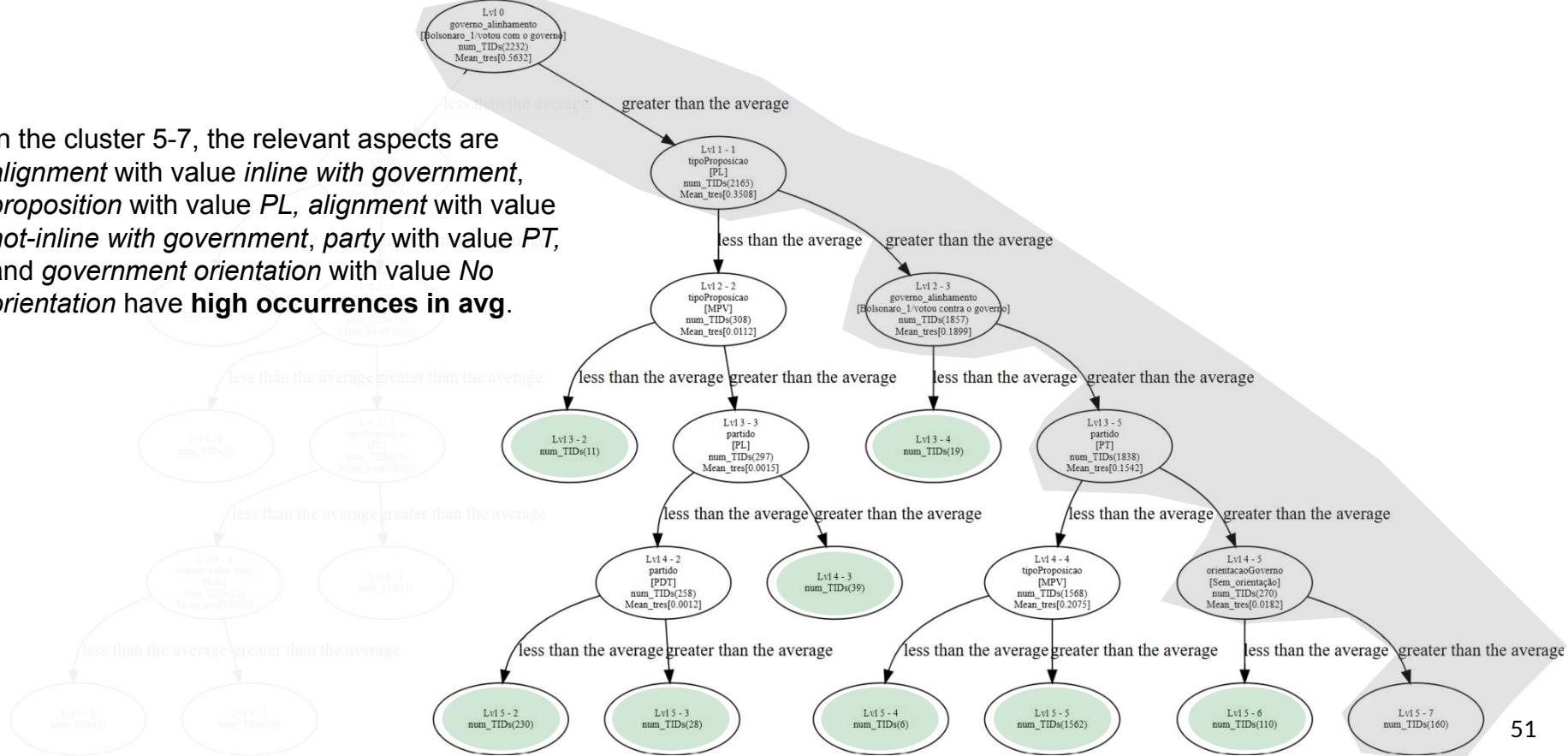
3.2.1. Bolsonaro government

- This is a cluster of deputies from PT party that mainly voted not-in-line with the government (82.62%) and obstruct on PL proposition.
- Cluster close to the global avg regarding the number of votes per trajectory.
- 90.32%** of PT deputies participated in this cluster.
- All deputies in this cluster **voted at least once against the government**.
 - 68.27% (5514) of that votes occurred in the 2° semester of 2019.
- This group has, on avg, **66.79% \pm 14.94%** of presence during the period with a coefficient of variance equal to **22.37%** (high).



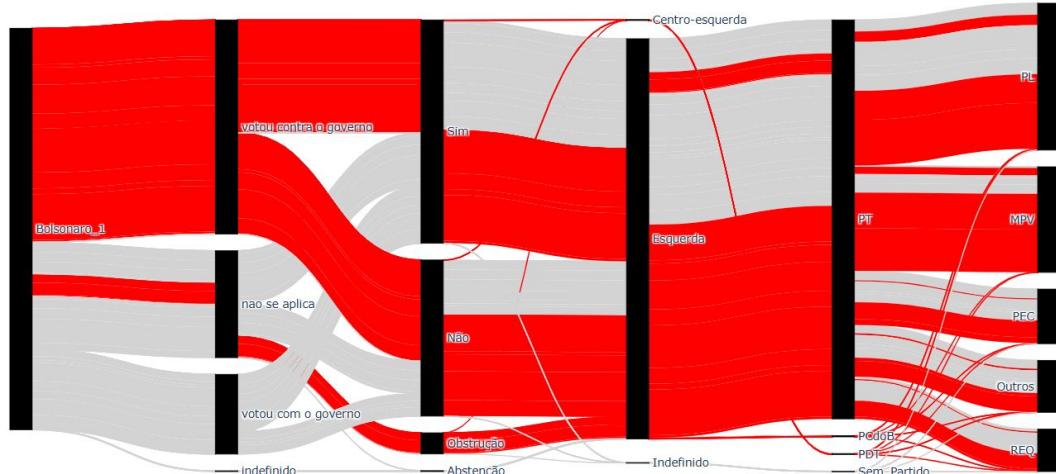
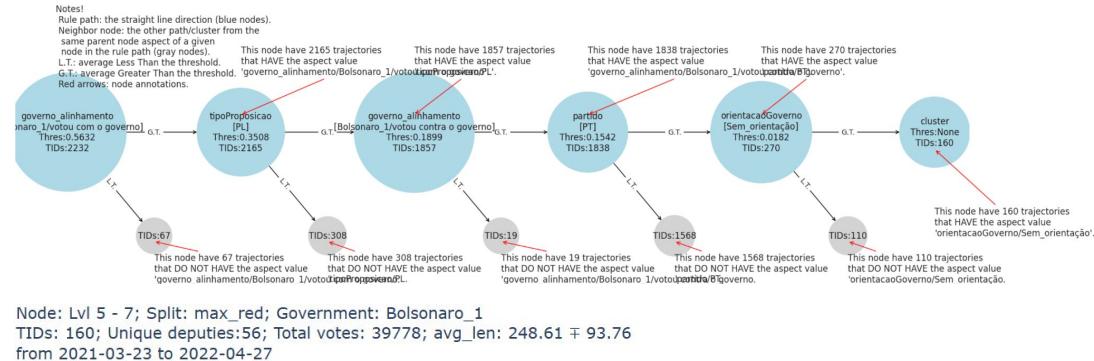
3.2.1. Bolsonaro government

- In the cluster 5-7, the relevant aspects are *alignment with value inline with government, proposition with value PL, alignment with value not-inline with government, party with value PT, and government orientation with value No orientation have high occurrences in avg.*



3.2.1. Bolsonaro government

- This is a cluster of deputies aligned to left political spectrum that mainly voted not-in-line with the government (79.92%) on PL proposition.
- Cluster higher than the global avg regarding the number of votes per trajectory.
- 90.32%** of PT deputies participated in this cluster.
- All deputies in this cluster **voted at least once against the government**.
 - 76.16% (17746) of that votes occurred in 2021, which **35.12%** (8183) in the 1º semester and **41.04%** (9563) in the 2º semester.
- This group has, on avg, **88.19% \pm 10%** of presence during the period with a coefficient of variance equal to **11.34%** (medium).



Dilma government (1° term)

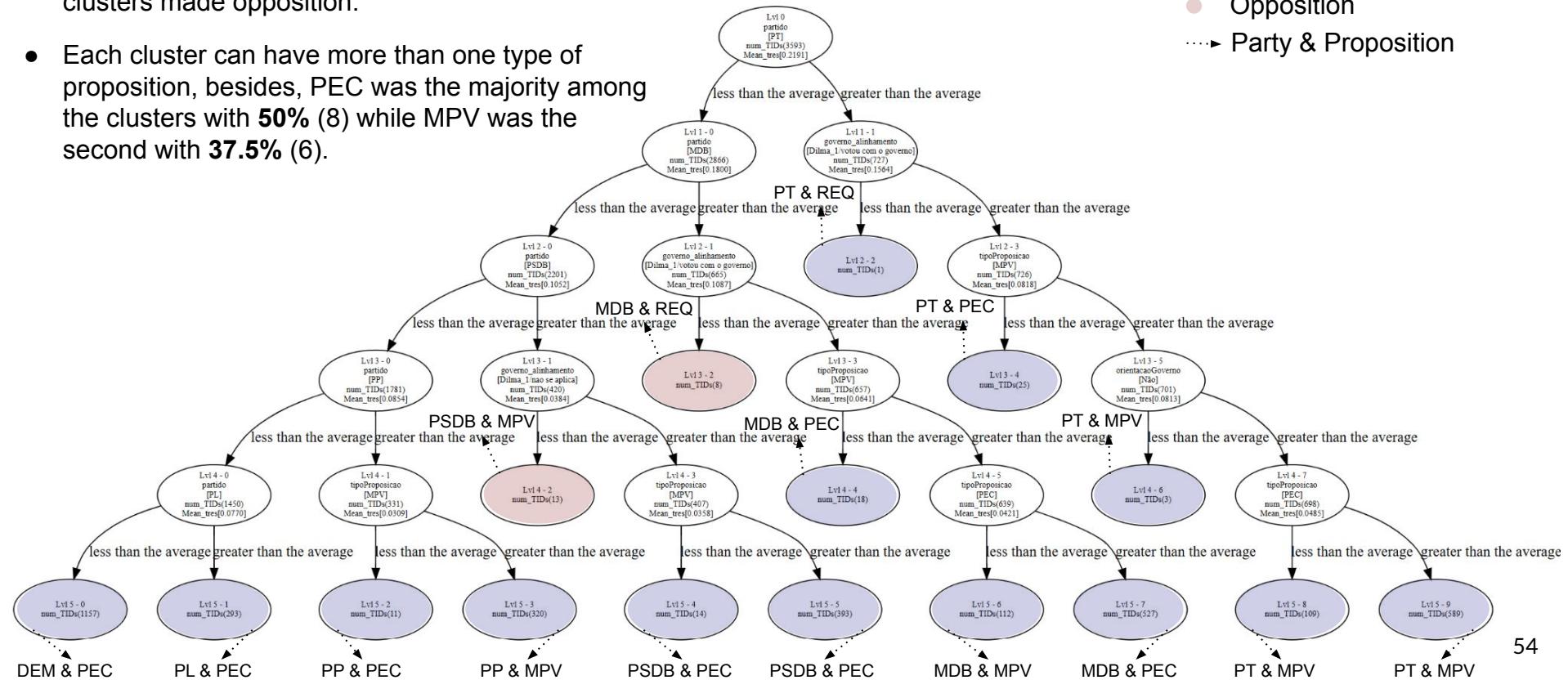
3.1.2. Dilma (1° term): overview support (clusters)

- Regarding the majority of votes in each cluster, 14 clusters have supported the government while 2 clusters made opposition.
- Each cluster can have more than one type of proposition, besides, PEC was the majority among the clusters with **50%** (8) while MPV was the second with **37.5%** (6).

Legend (majority of votes)

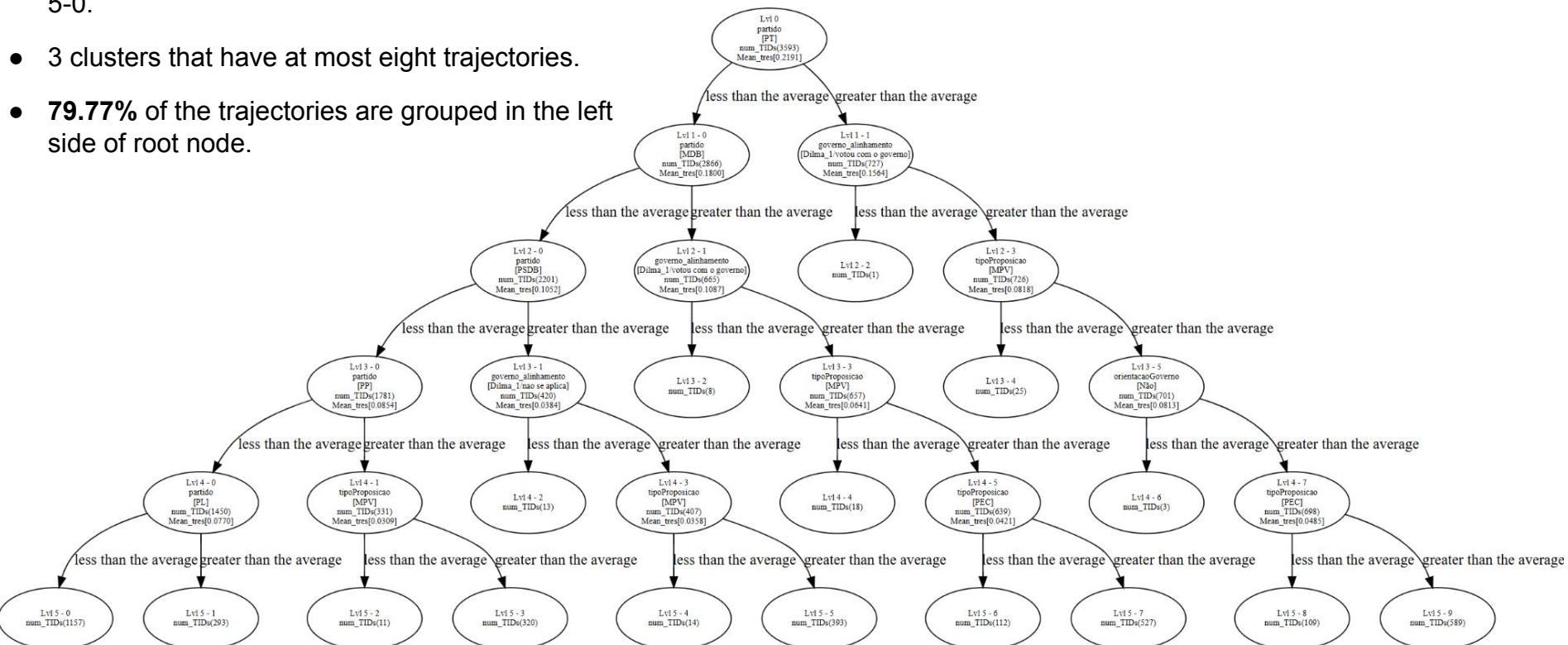
- Support
- Opposition

Party & Proposition



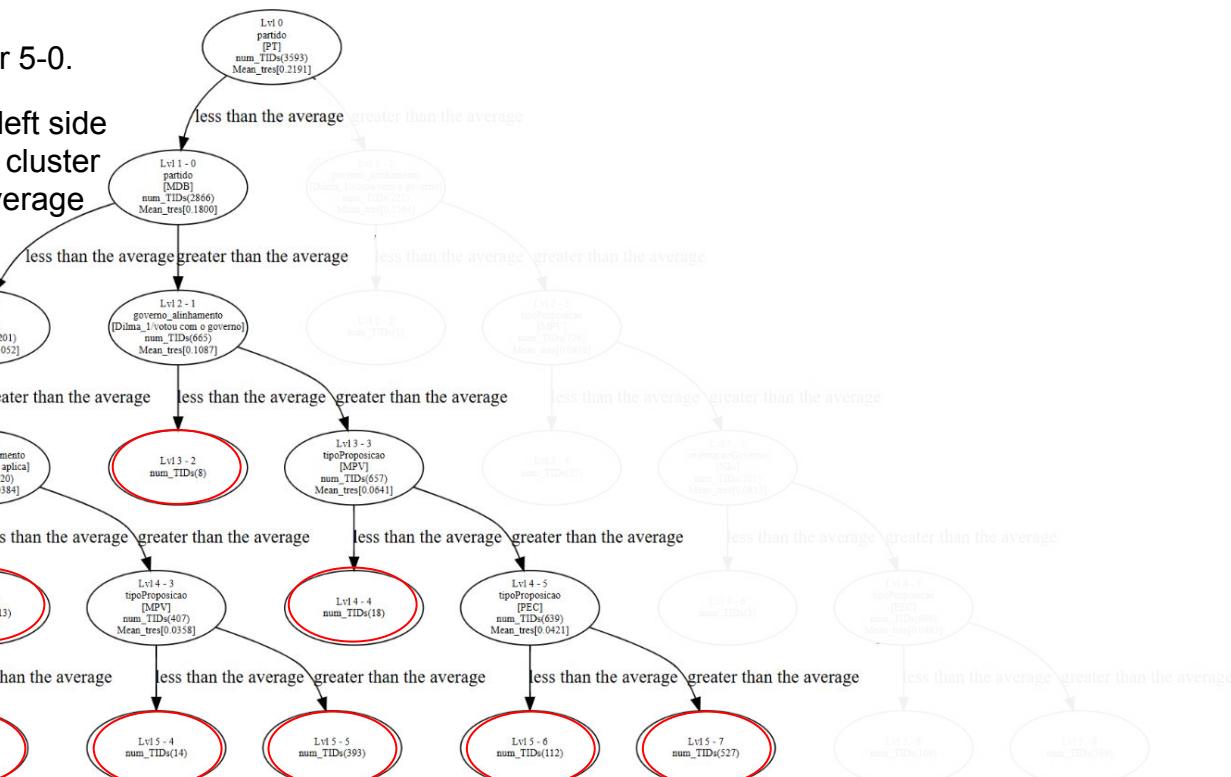
3.1.2. Dilma (1° term)

- 16 clusters, 649 deputies distributed into 29 parties.
32.2% of the trajectories are grouped into cluster 5-0.
- 3 clusters that have at most eight trajectories.
- **79.77%** of the trajectories are grouped in the left side of root node.



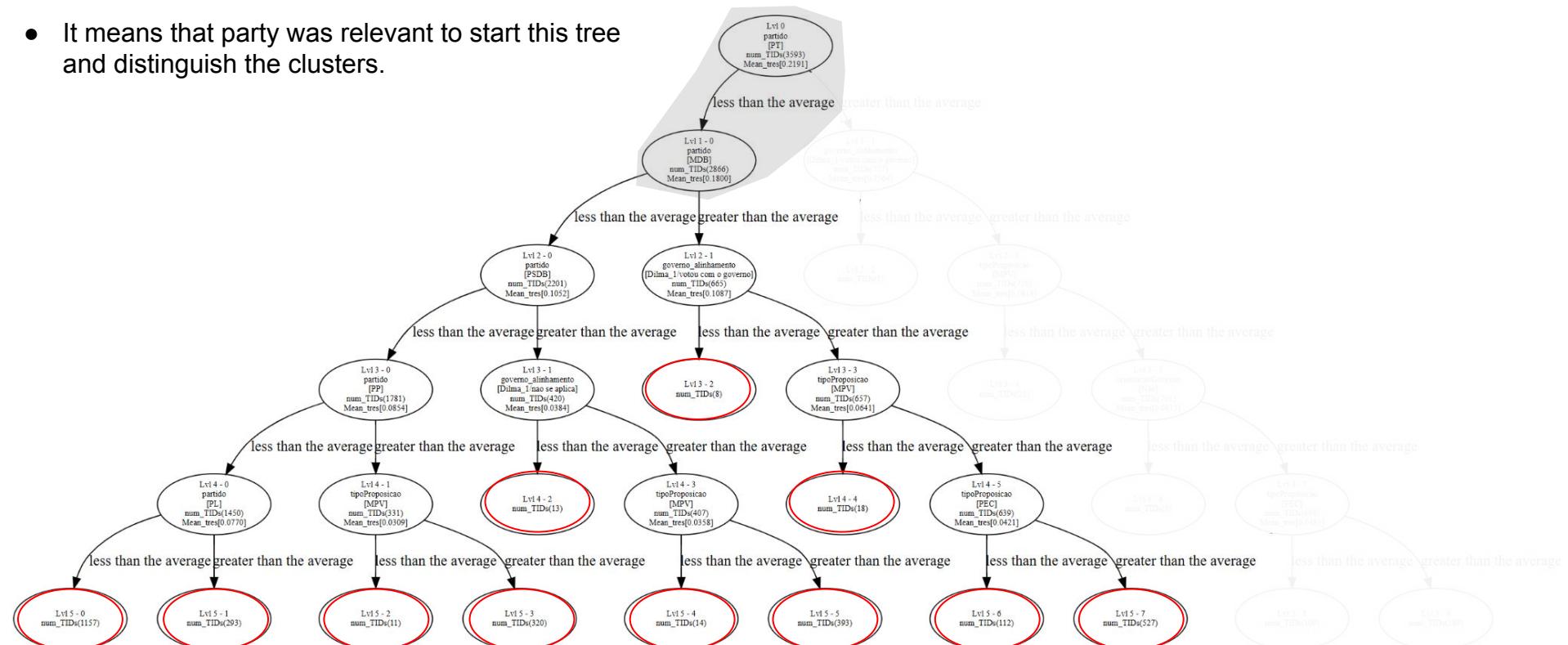
3.1.2. Dilma (1° term)

- 11 clusters in the left side of root node.
- 1 cluster with at most 8 trajectories.
- **32.2%** of trajectories are grouped in cluster 5-0.
- The further the cluster is positioned to the left side of the tree, the more this indicates that the cluster has a number of occurrences below the average or even none at all.



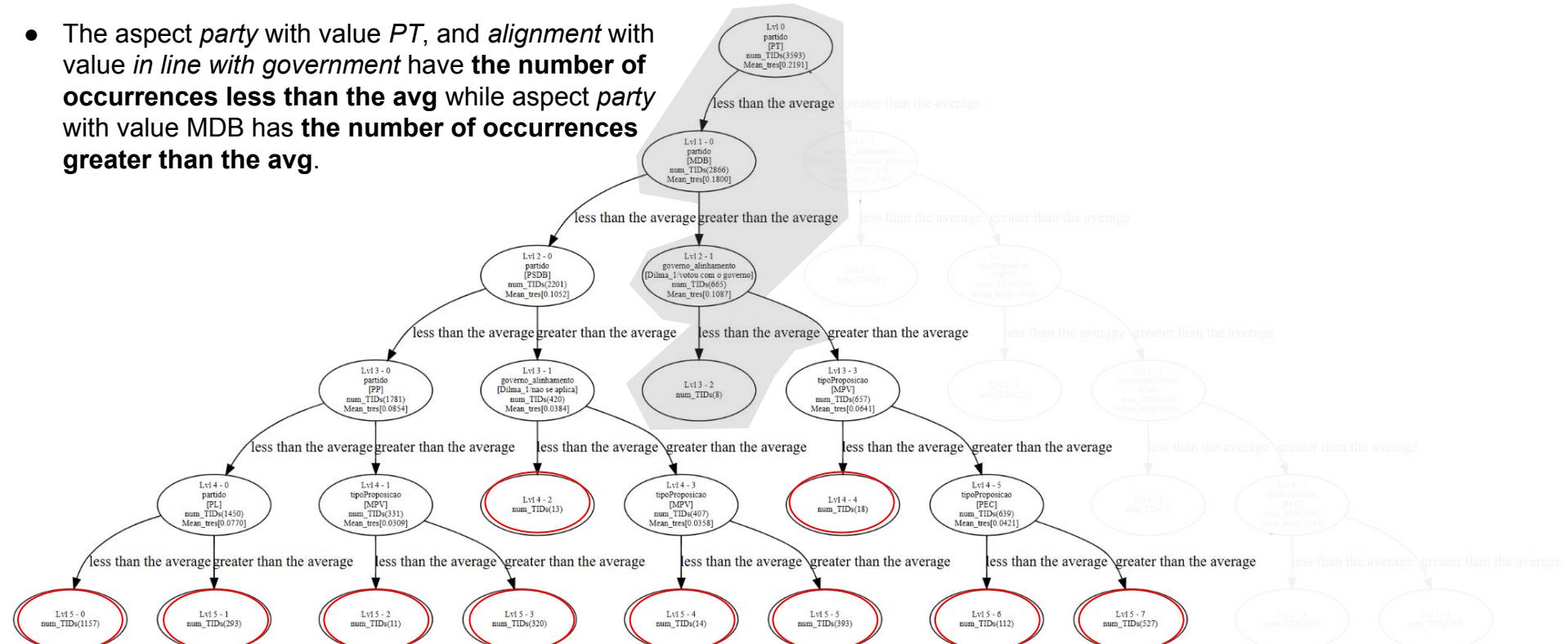
3.1.2. Dilma (1° term)

- All clusters share two aspects on their path that is the Party changing just its value.
- It means that party was relevant to start this tree and distinguish the clusters.

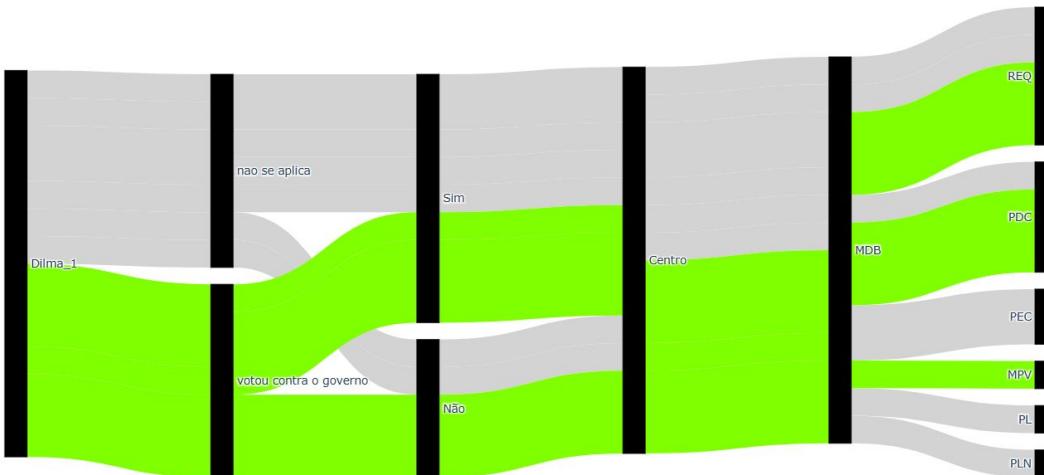
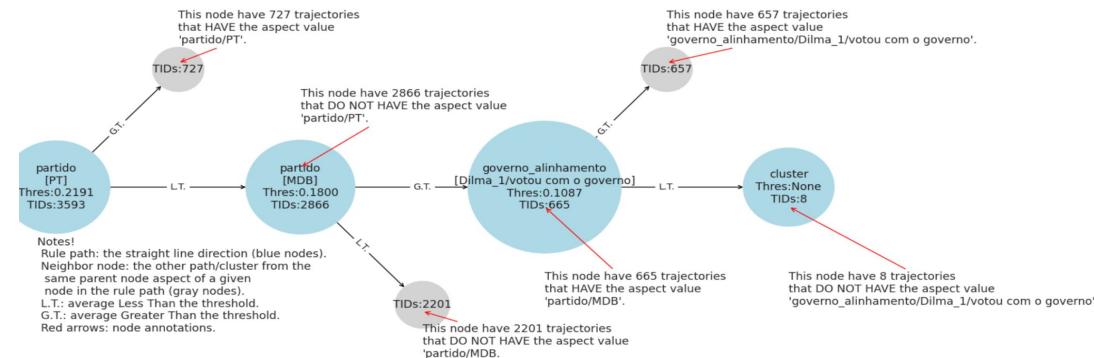


3.1.2. Dilma (1° term)

- Cluster 3-2 is the smallest cluster in the left side of the tree.
- The aspect *party* with value *PT*, and *alignment* with value *in line with government* have **the number of occurrences less than the avg** while aspect *party* with value *MDB* has **the number of occurrences greater than the avg**.



3.1.2. Dilma (1° term)



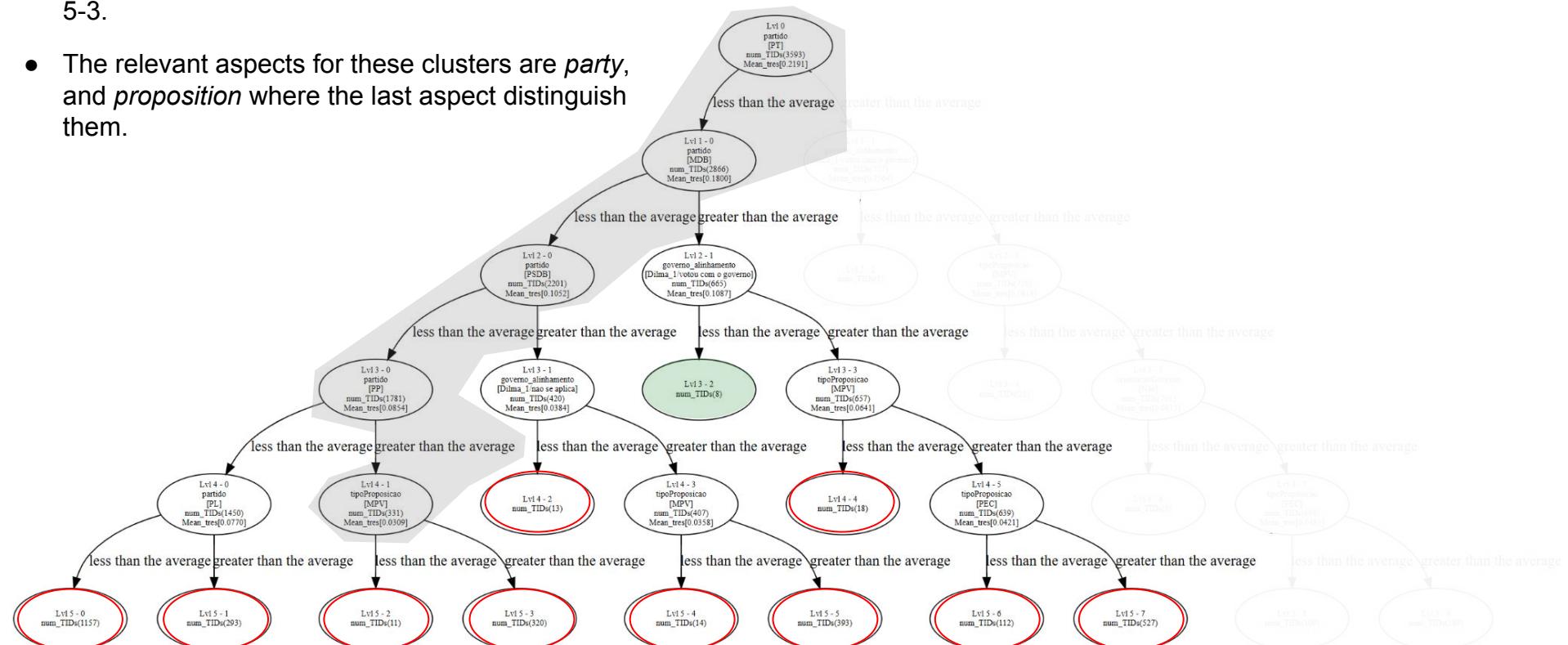
- This is a cluster of votes of deputies from MDB where 50% of the votes were against the government focusing on REQ, PDC, and MPV propositions.
- This cluster has short trajectories which means that deputies appear infrequently at parliament.
- This group has, on avg, **$17.63\% \pm 7.59\%$** of presence during the period with a coefficient of variance equal to **80.75%** (very high).

Opposition						
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date	
Mendes Filho	3	1	1	1.09	11/6/13 to 11/6/13	
Almeida Lima	8	1	3	12	15/7/14 to 2/12/14	
Colbert Martins	4	1	2	8	15/7/14 to 5/8/14	
Francisco Escárcio	8	1	2	8	15/7/14 to 5/8/14	

* The deputy has at least one vote against the government in his trajectory.

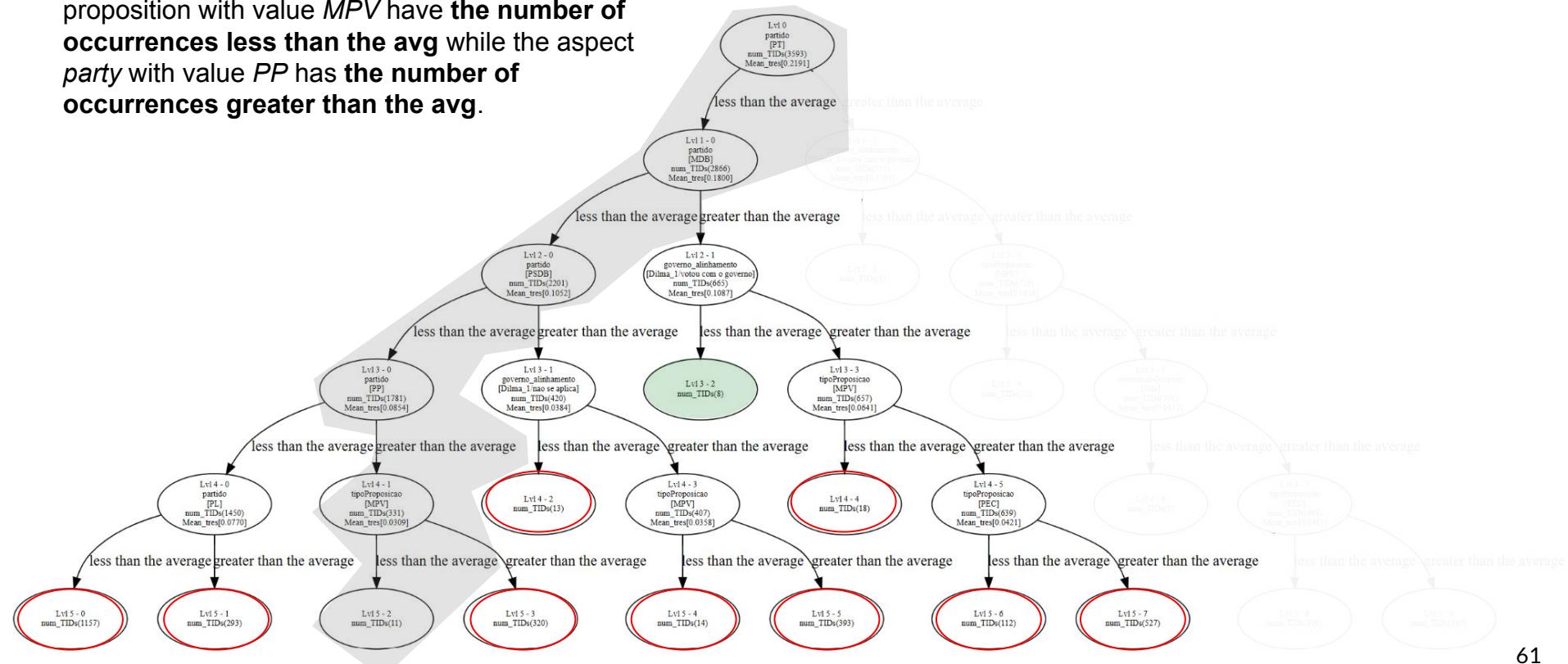
3.1.2. Dilma (1° term)

- Cluster 5-2 is the 2nd smallest among the clusters.
It shares aspect path with its brother node, cluster 5-3.
- The relevant aspects for these clusters are *party*, and *proposition* where the last aspect distinguish them.

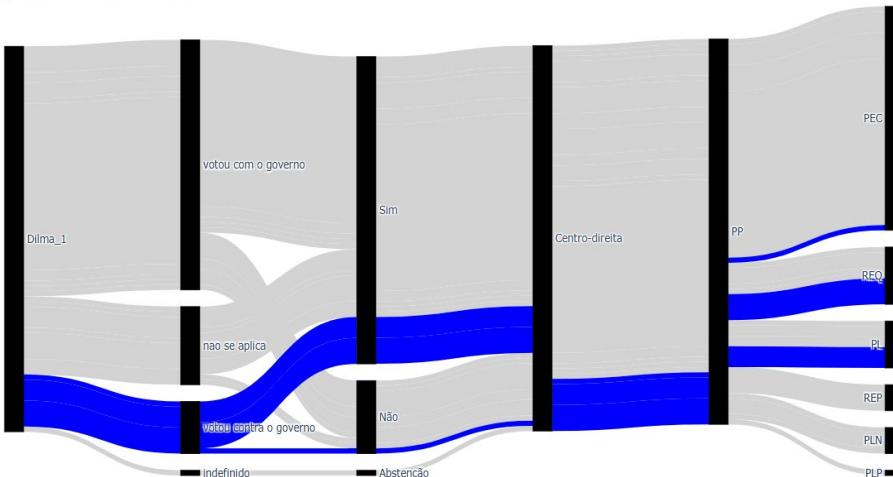
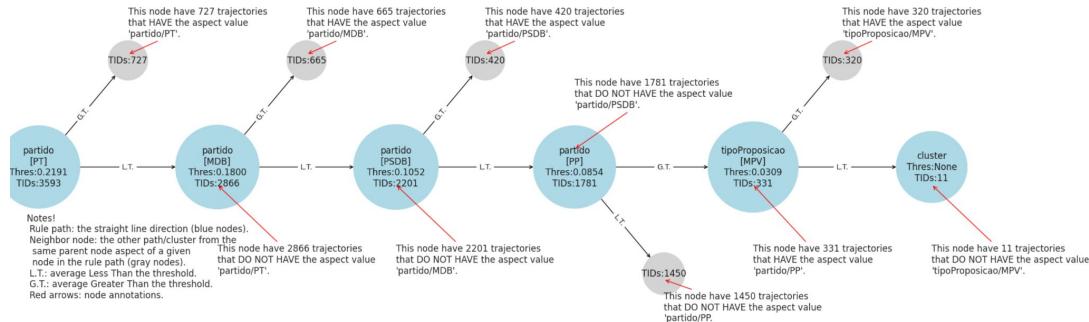


3.1.2. Dilma (1° term)

- In the cluster 5-2, the aspects party with value *PT*, *party* with value *MDB*, party with value *PSDB*, and proposition with value *MPV* have **the number of occurrences less than the avg** while the aspect *party* with value *PP* has **the number of occurrences greater than the avg**.



3.1.2. Dilma (1° term)



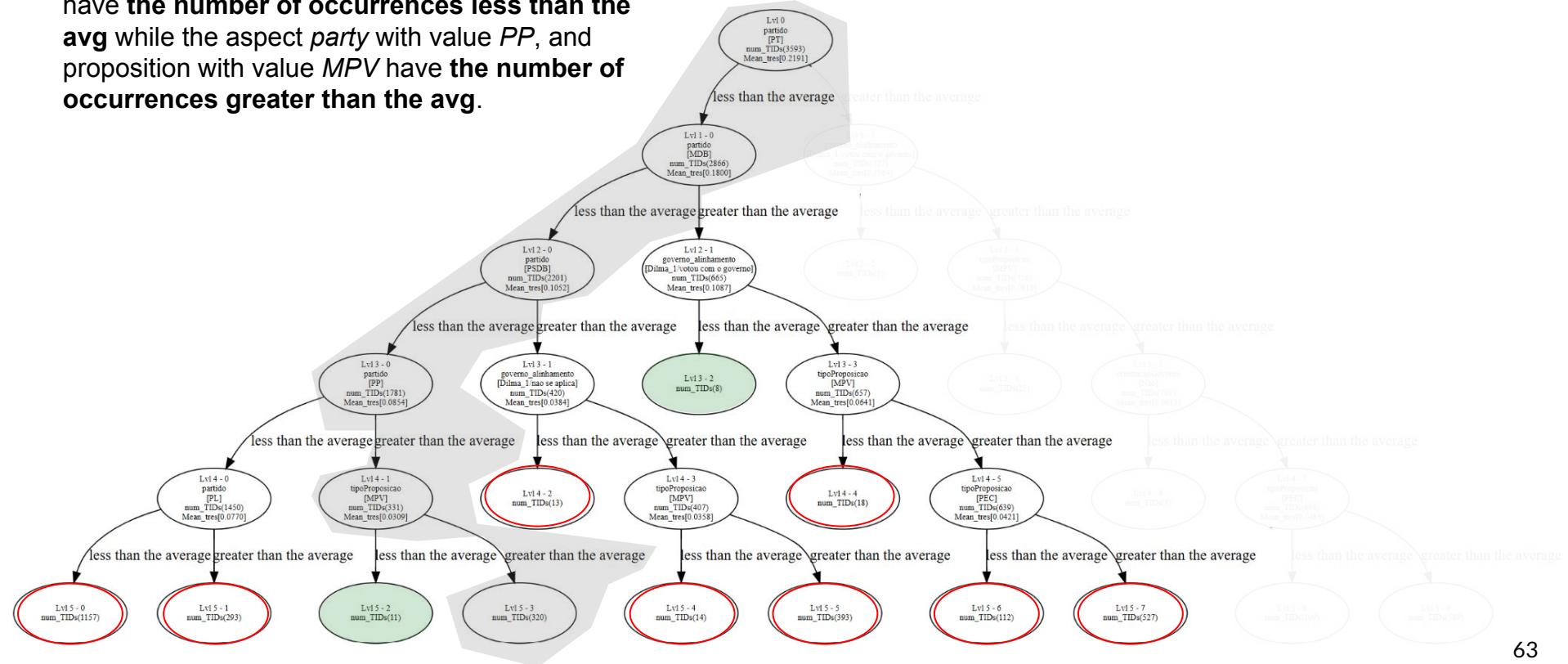
- This is a cluster of votes of deputies from PP party where the majority of votes are to support the government (64.86% of the votes) mainly for PEC proposition.
- This cluster has short trajectories which means that deputies appear infrequently at parliament.
- 60.93% (39) of the supported votes occurred in 2014.
- This group has, on avg, **16.23%±9.36%** of presence during the period with a coefficient of variance equal to **57.67%** (very high).

Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Gladson Cameli	8	2	15	26.32	31/8/11 to 13/12/11
			5	20	15/7/14 to 10/12/14
Carlos Magno	8	1	13	21.31	4/2/14 to 26/3/14
Jorge Boeira	6	1	9	14.75	4/2/14 to 19/3/14
Paulo Lustosa	3	1	4	6.56	5/2/14 to 12/2/14
Aline Corrêa	8	1	9	36	15/7/14 to 16/12/14
José Germano	8	1	4	16	15/7/14 to 16/12/14
João Pizzolatti	7	1	3	12	15/7/14 to 16/12/14

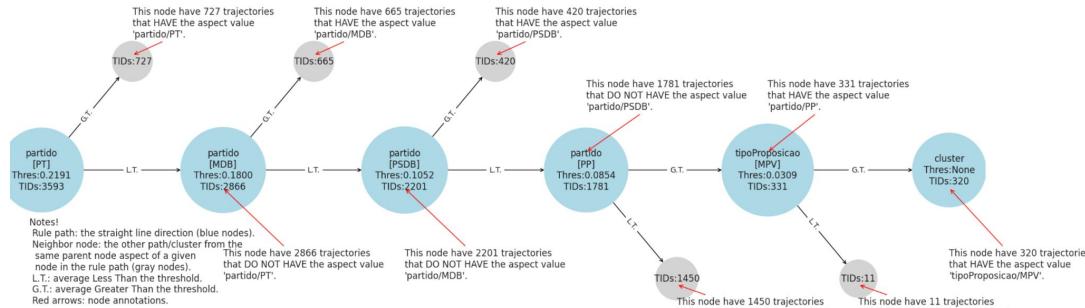
* The deputy has at least one vote against the government in his trajectory.

3.1.2. Dilma (1° term)

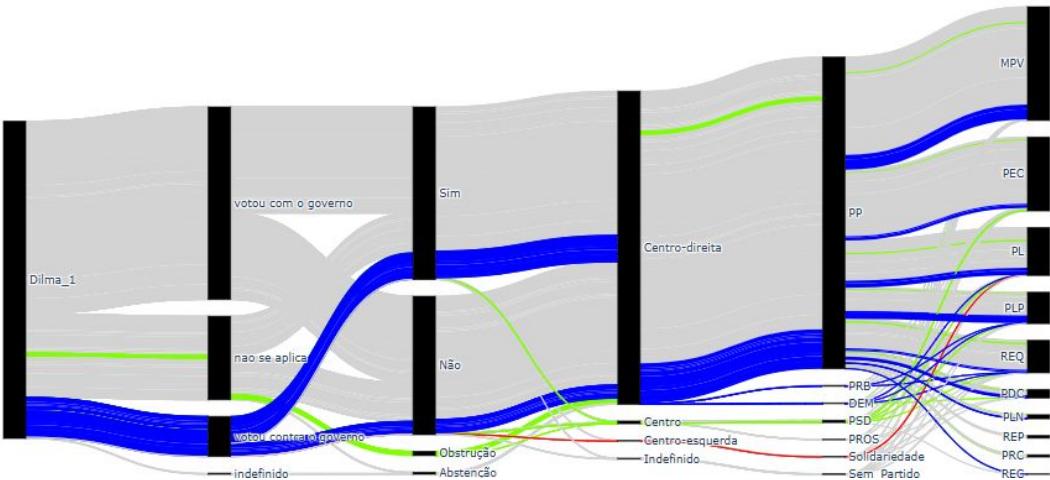
- In the cluster 5-3, the aspects party with value *PT*, *party* with value *MDB*, and party with value *PSDB* have **the number of occurrences less than the avg** while the aspect *party* with value *PP*, and proposition with value *MPV* have **the number of occurrences greater than the avg**.



3.1.2. Dilma (1º term)



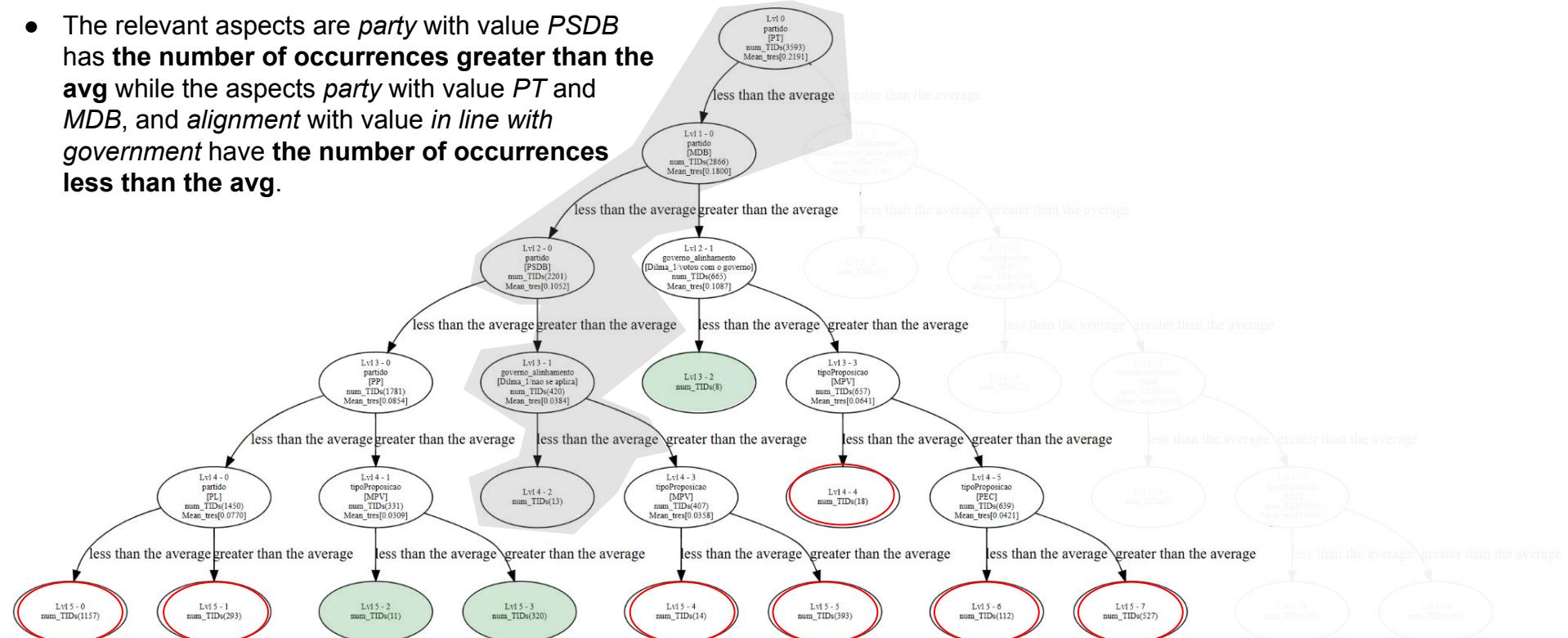
Node: Lvl 5 - 3; Split: max_red; Government: Dilma_1
 TIDs: 320; Unique deputies:54; Total votes: 9942; avg_len: 31.07 ± 14.13
 from 2011-02-15 to 2014-12-17



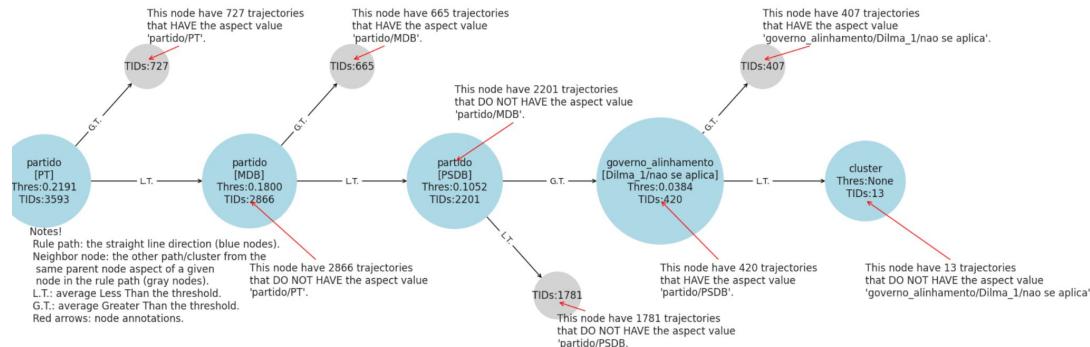
- **This is a cluster of votes where the majority of votes are from deputies of PP party that supported the government mainly for MPV proposition.**
- **85.45%** of the deputies from PP are present in this cluster, corresponding to **93.53%** of the total votes.
- All deputies voted **at least once** against the government. From these votes, **24.53%** (340) in the 1º semester of 2013, and **23.74%** (329) in the 1º semester of 2014.
- This group has, on avg, **60.44%±20.49%** of presence during the period with a coefficient of variance equal to **33.9%** (very high).

3.1.2. Dilma (1° term)

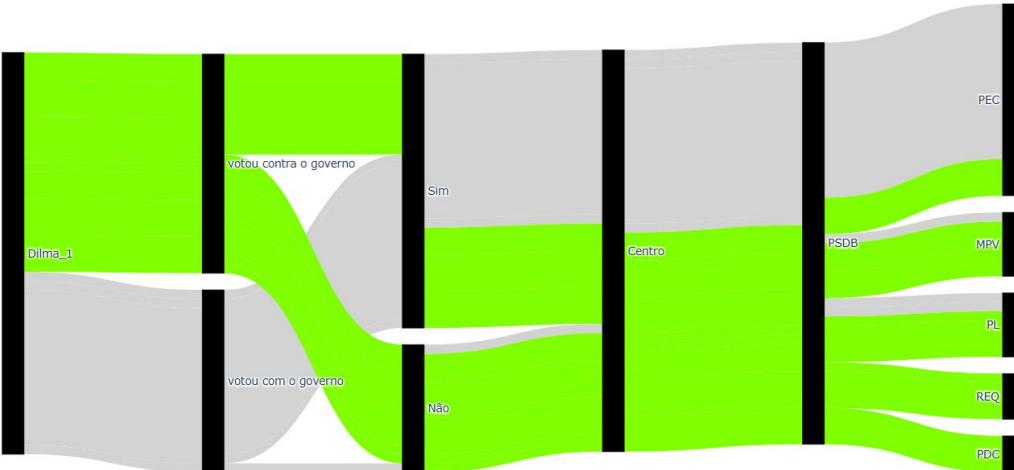
- Cluster 4-2 is the 3rd smallest cluster among the others.
- The relevant aspects are *party* with value *PSDB* has the number of occurrences greater than the avg while the aspects *party* with value *PT* and *MDB*, and *alignment* with value *in line with government* have the number of occurrences less than the avg.



3.1.2. Dilma (1° term)



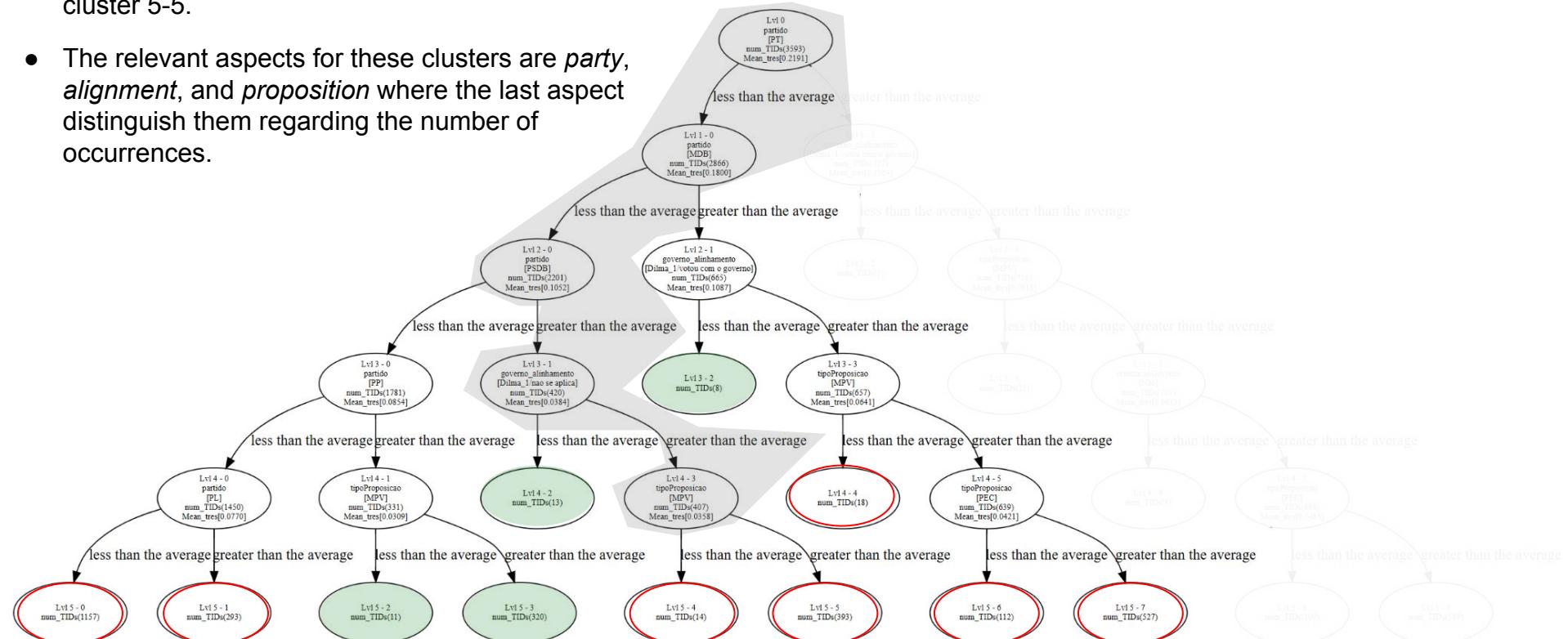
Node: Lvl 4 - 2; Split: max_red; Government: Dilma_1
 TIDs: 13; Unique deputies:13; Total votes: 44; avg_len: 3.38 ± 2.22
 from 2011-02-16 to 2014-12-17



- Considering the aspects, this is a cluster of votes of deputies fro PSDB party that the majority of votes are against the government (54.55%) mainly for MPV, PL, REQ and PDC propositions.
- The trajectories are not long, it shows that the deputies are not frequent in parliament.
- All deputies voted at least once against the government.
- This group has, on avg, **9.79%±9.03%** of presence during the period with a coefficient of variance equal to **92.24%** (very high).

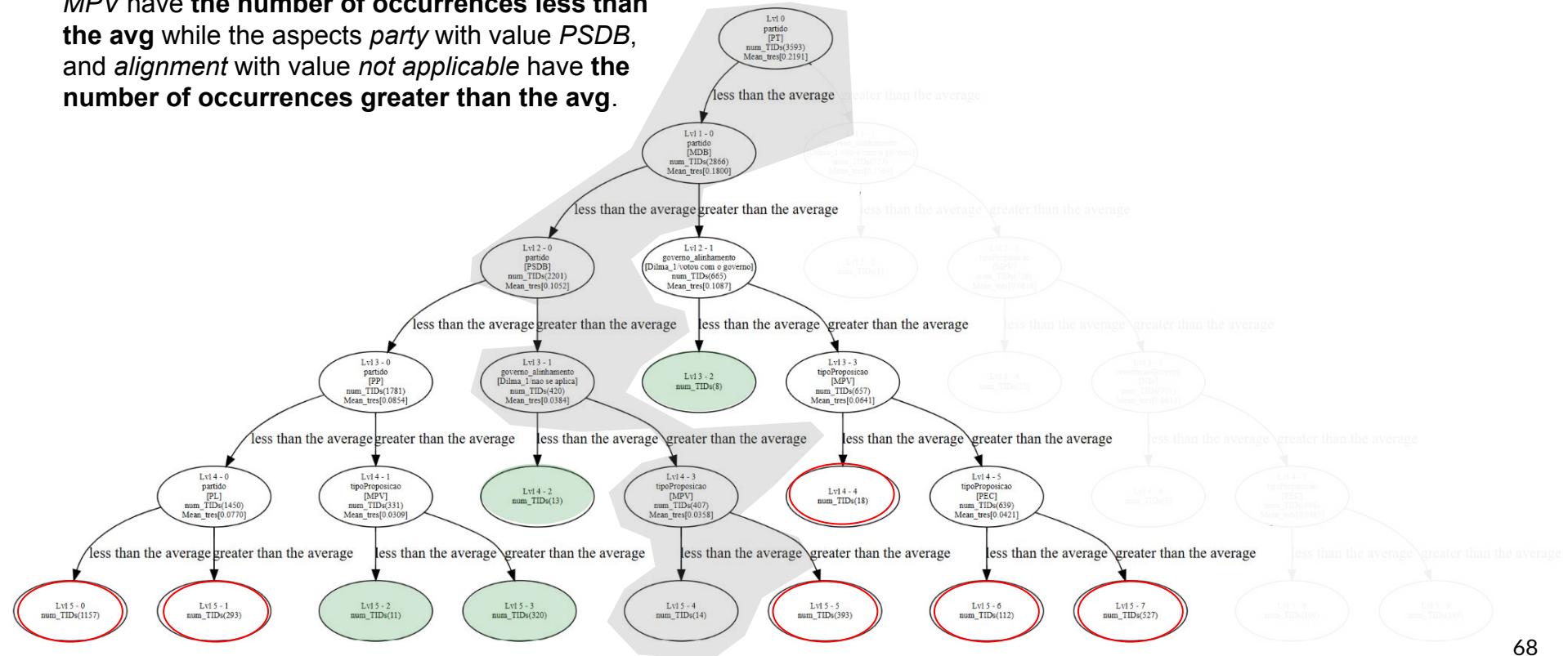
3.1.2. Dilma (1° term)

- Cluster 5-4 is the 4th smallest among the clusters.
It shares the aspect path with its brother node, cluster 5-5.
- The relevant aspects for these clusters are *party*, *alignment*, and *proposition* where the last aspect distinguish them regarding the number of occurrences.

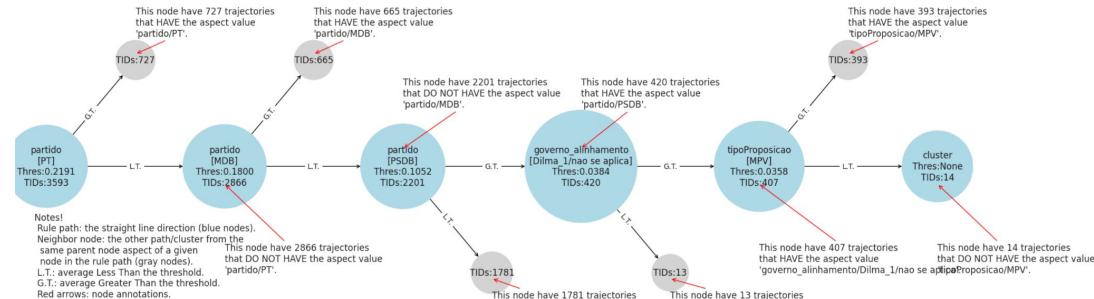


3.1.2. Dilma (1° term)

- In the cluster 5-4, the relevant aspects *party* with values *PT* and *MDB*, and *proposition* with value *MPV* have **the number of occurrences less than the avg** while the aspects *party* with value *PSDB*, and *alignment* with value *not applicable* have **the number of occurrences greater than the avg**.



3.1.2. Dilma (1° term)



Node: Lvl 5 - 4; Split: max_red; Government: Dilma_1
 TIDs: 14; Unique deputies:11; Total votes: 97; avg_len: 6.93 ± 4.3
 from 2011-11-22 to 2014-12-17

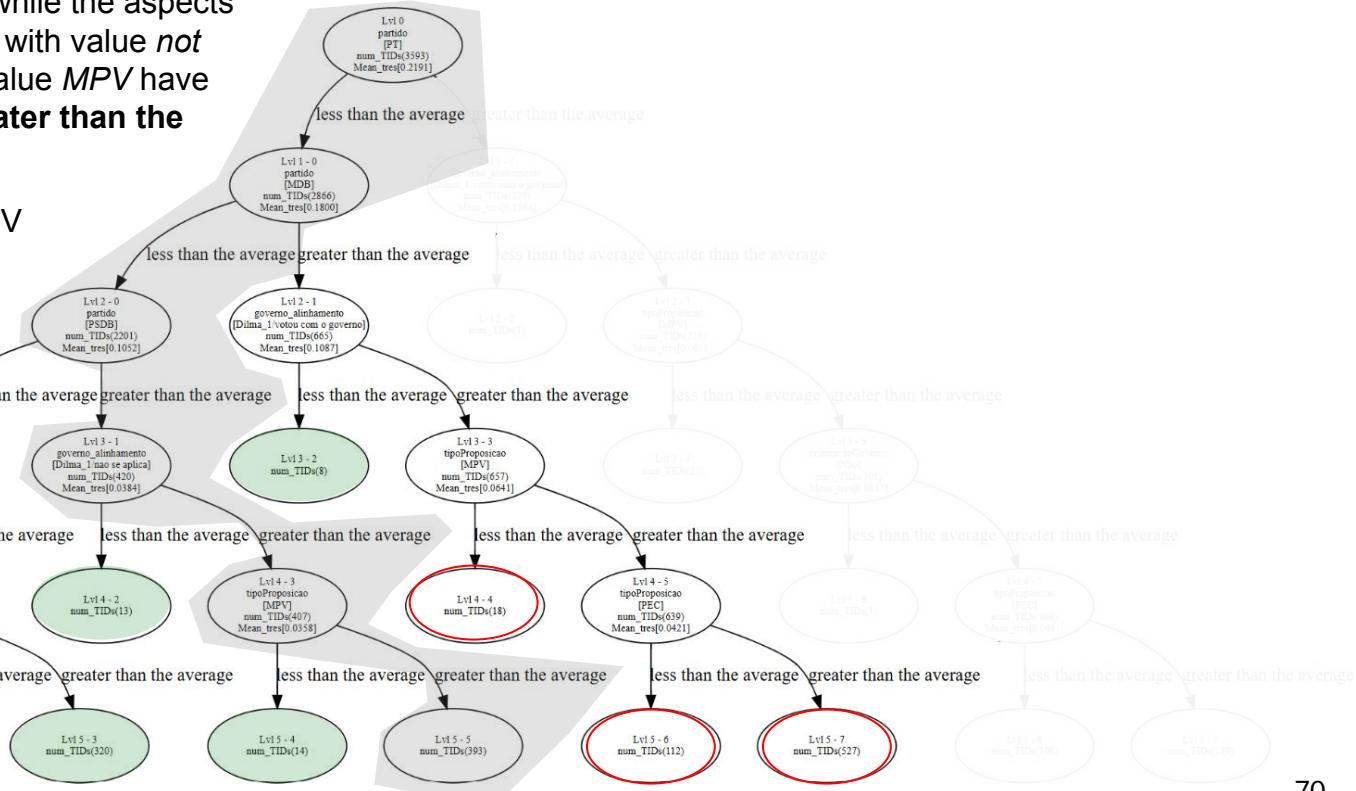


- Considering the aspects, this is a cluster of votes of deputies from PSDB party to support the government (64.95%). Moreover, this group did not participate to vote on MPV proposition.
- The trajectories are not long, it shows that the deputies are not frequent in parliament. 56.7% of the votes occurred in 2014.
- This group has, on avg, **19.43%±12.94%** of presence during the period with a coefficient of variance equal to **66.6%** (very high).

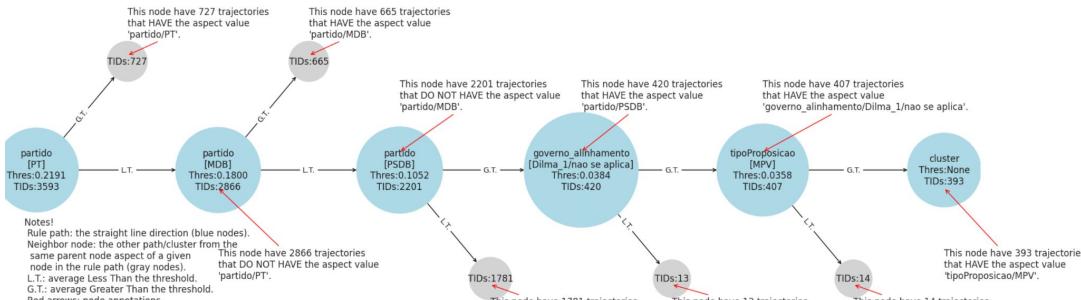
Deputy	Opposition			Date
	# TIDs	# TIDs dataset	# votes cluster	
Emanuel Fernandes	7	1	14	24.56 22/11/11 to 14/12/11
Leonardo Vilela	2	1	8	14.04 22/11/11 to 22/11/11
Zenaldo Coutinho	3	1	3	6.98 6/11/12 to 21/11/12
Marcio Bittar	8	1	13	20 3/7/13 to 11/12/13
Carlos Sampaio	8	2	10	16.39 11/2/14 to 3/6/14
Luiz Machado	8	1	6	24 15/7/14 to 10/12/14
Wandenkolk Gonçalves	8	1	9	36 15/7/14 to 16/12/14
José Aníbal	2	1	10	40 4/11/14 to 16/12/14
Narcio Rodrigues	2	1	6	24 2/12/14 to 16/12/14

3.1.2. Dilma (1° term)

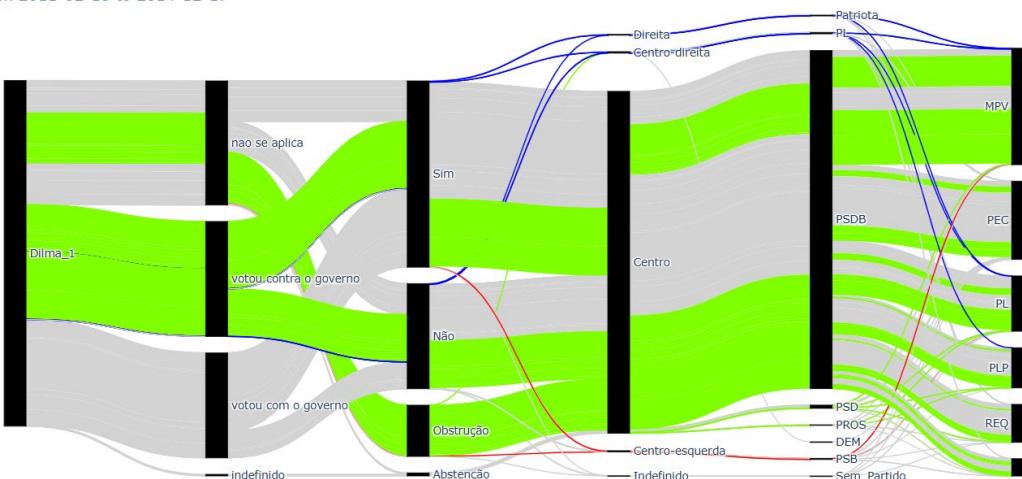
- In the cluster 5-5, the relevant aspects *party* with values *PT* and *MDB* have **the number of occurrences less than the avg** while the aspects *party* with value *PSDB*, *alignment* with value *not applicable*, and *proposition* with value *MPV* have **the number of occurrences greater than the avg**.
- On contrary to cluster 5-4, the *MPV* proposition is more relevant in the cluster 5-5.



3.1.2. Dilma (1° term)



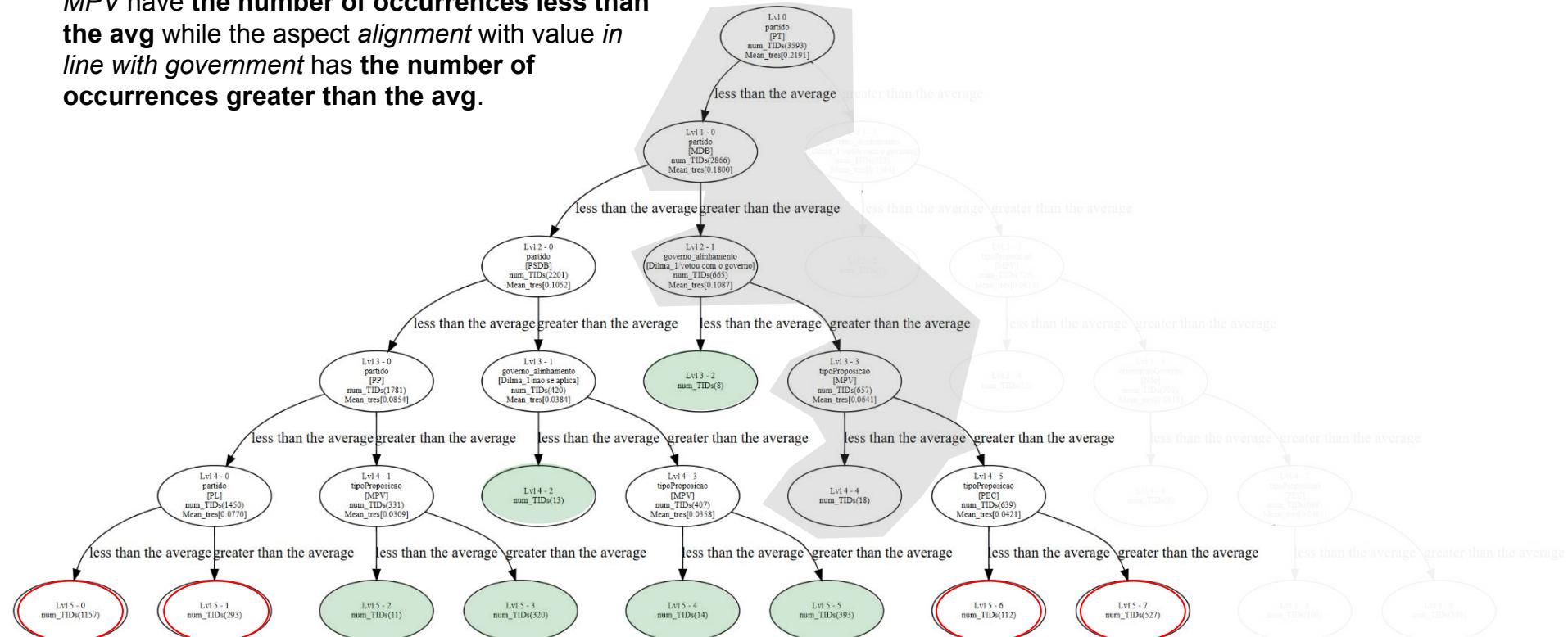
Node: Lvl 5 - 5; Split: max_red; Government: Dilma_1
TIDs: 393; Unique deputies: 73; Total votes: 12251; avg_len: 31.17 ± 14.06
from 2011-02-15 to 2014-12-17



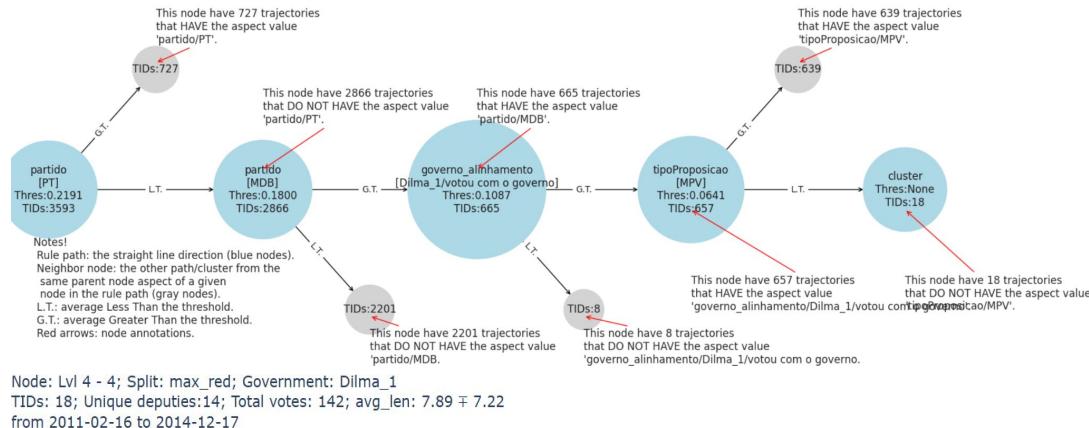
- Considering the aspects, this is a cluster where the majority of votes are from deputies of PSDB party that mainly voted to support the government (54.81%), but also make a hard opposition. Moreover, this group participated more to vote on MPV proposition.
- 42.32% of the supported votes to government occurred along 2013 while 34.05% of the votes against the government occurred along 2011.
- This group has, on avg, **59.77% \pm 18.28%** of presence during the period with a coefficient of variance equal to **30.58%** (very high).

3.1.2. Dilma (1° term)

- In the cluster 4-4, the relevant aspects *party* with values *PT* and *MDB*, and *proposition* with value *MPV* have **the number of occurrences less than the avg** while the aspect *alignment* with value *in line with government* has **the number of occurrences greater than the avg**.



3.1.2. Dilma (1° term)

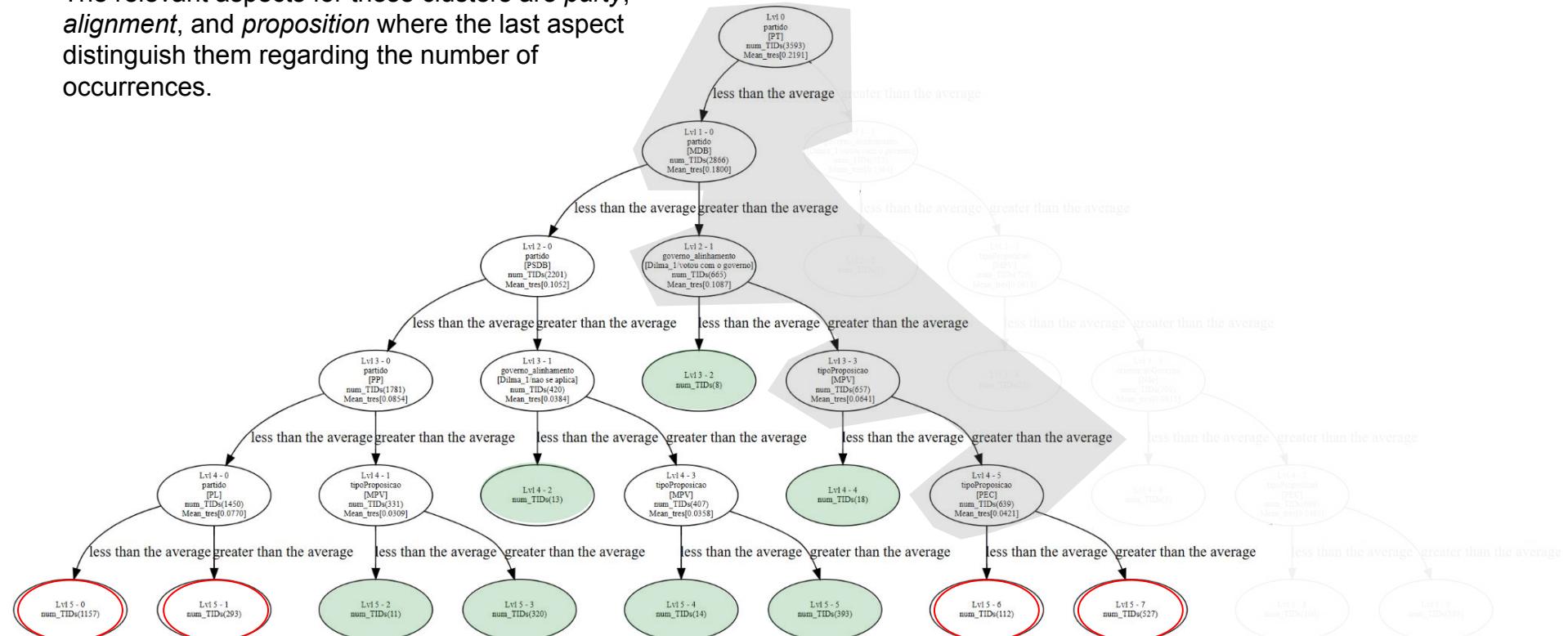


- Considering the aspects, this is a cluster where the majority of votes are from deputies of MDB party that mainly voted to support the government (89.44%). Moreover, this group participated more to vote on PEC proposition.
- The trajectories are not long, it shows that the deputies are not frequent in parliament.
- 45.67% of the supported votes to government occurred along 2011 and 44.1% in 2014.
- This group has, on avg, 20.32%±16.49% of presence during the period with a coefficient of variance equal to 81.15% (very high).

Opposition (at least one vote)					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Hermes Parcianello	8	1	8		14/2/12 to 27/6/12
Asdrubal Bentes	6	1	12		4/2/14 to 12/3/12
Silas Brasileiro	3	1	10		4/2/14 to 12/3/12
Gastão Vieira	4	1	13		15/7/14 to 17/12/14
Mauro Mariani	8	1	13		15/7/14 to 17/12/14
Rodrigo Bethlem	7	2	5		28/10/14 to 16/12/14
Marcelo Almeida	4	1	4		16/12/14 to 16/12/14

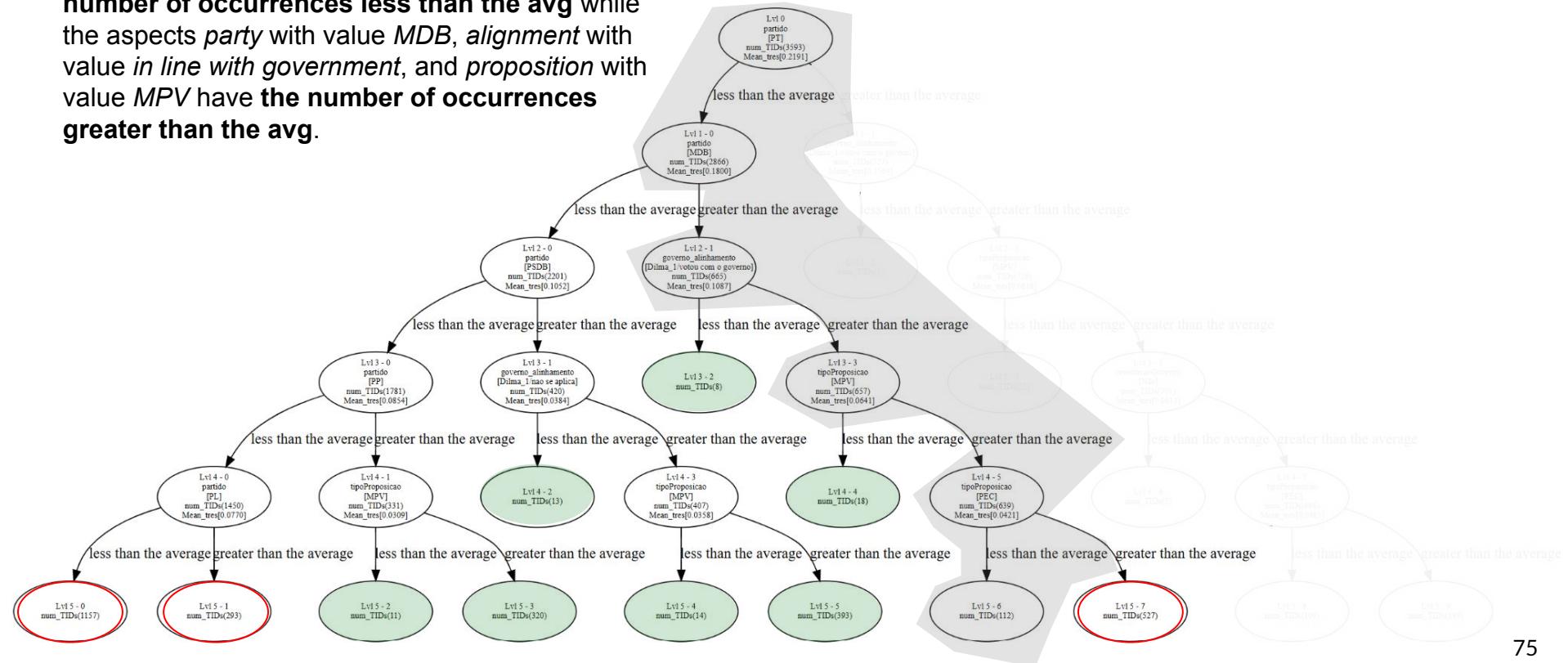
3.1.2. Dilma (1° term)

- Clusters 5-6 and 5-7 share the same aspect path.
- The relevant aspects for these clusters are *party*, *alignment*, and *proposition* where the last aspect distinguish them regarding the number of occurrences.

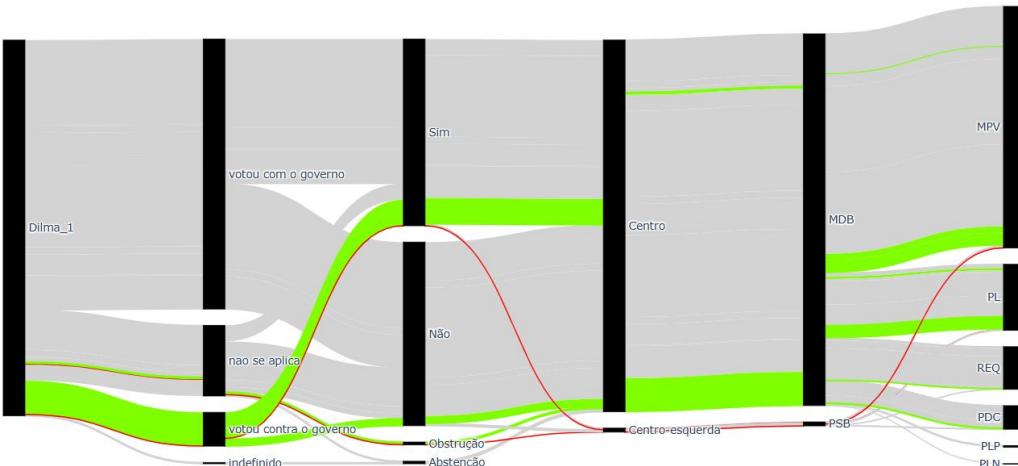
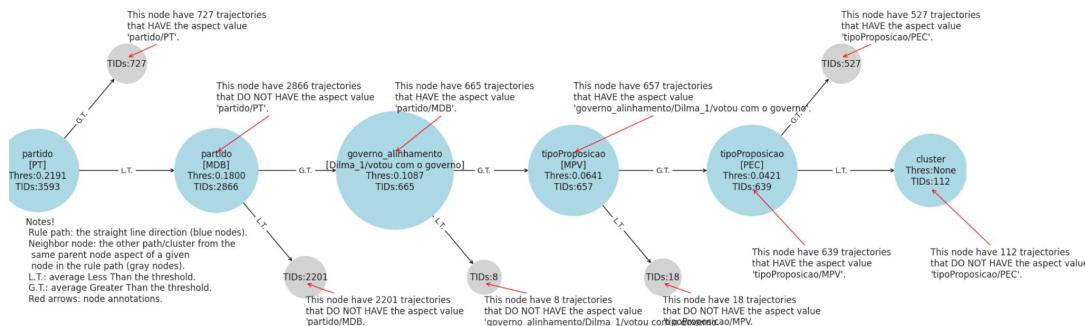


3.1.2. Dilma (1° term)

- In the cluster 5-6, the relevant aspects *party* with value *PT*, and *proposition* with value *PEC* have **the number of occurrences less than the avg** while the aspects *party* with value *MDB*, *alignment* with value *in line with government*, and *proposition* with value *MPV* have **the number of occurrences greater than the avg**.



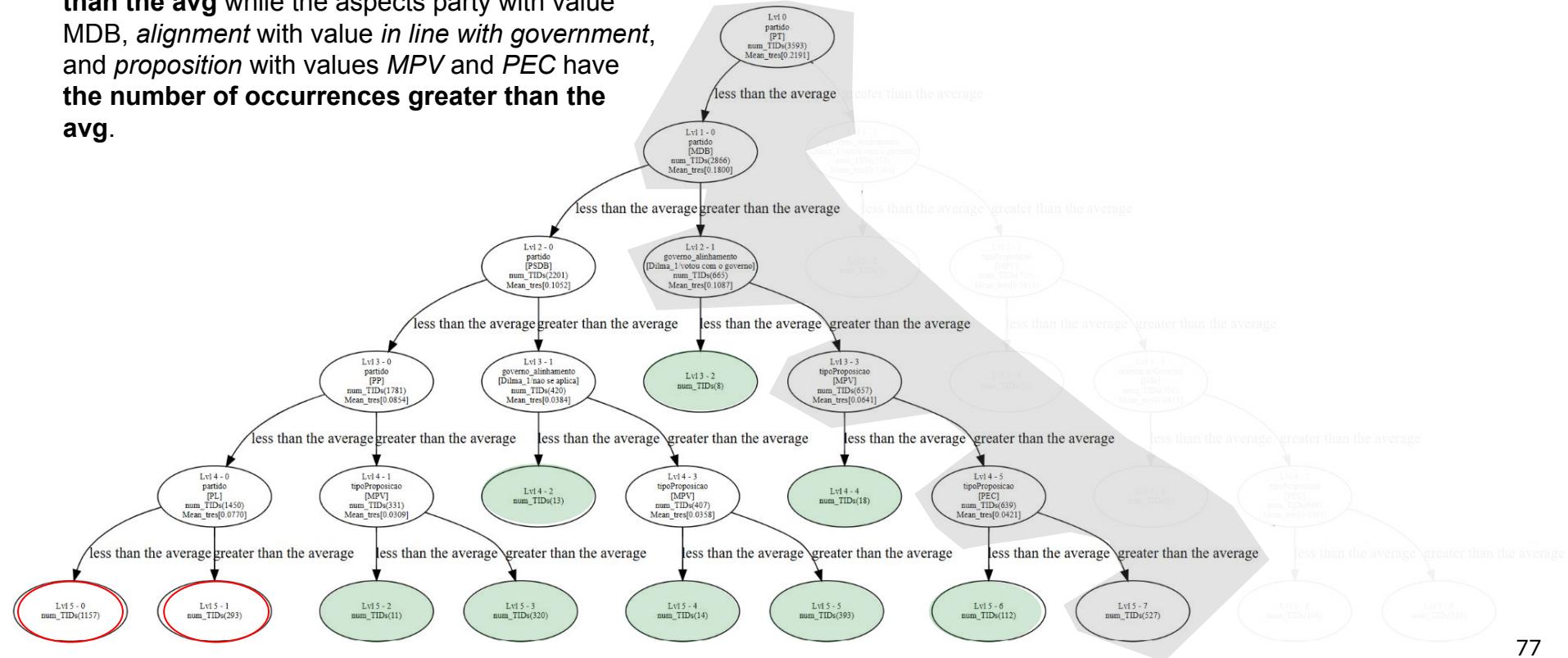
3.1.2. Dilma (1° term)



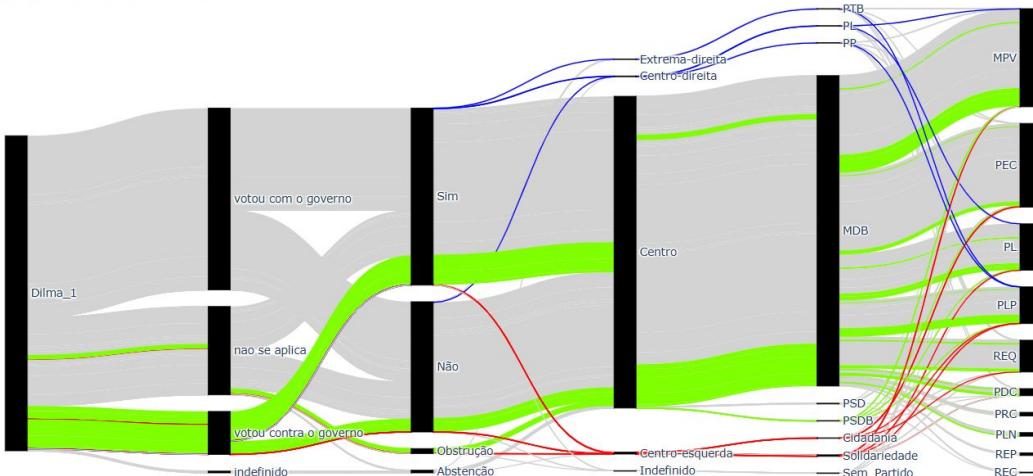
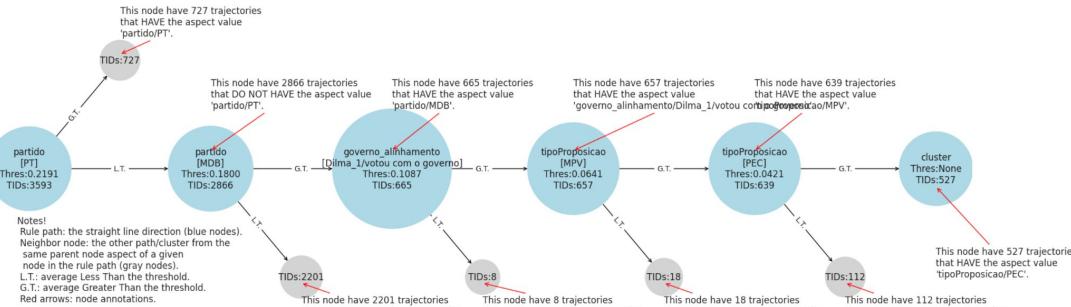
- Considering the aspects, this is a cluster where the majority of votes are from deputies of MDB party that mainly voted to support the government (90.24%). Moreover, this group participated more to vote on MPV proposition.
- 85.92% (2050) of votes to support the government occurred in the 1° semester of 2011. Similar to this, 78.68% (203) of the against votes were in the 1° semester of 2011.
- 81 of 88 deputies voted at least once against the government, which represents 72.97% of the number of MDB deputies.
- This group has, on avg, 58.19%±24.02% of presence during the period with a coefficient of variance equal to 41.28% (very high).

3.1.2. Dilma (1° term)

- In the cluster 5-7, the relevant aspect *party* with value *PT* has **the number of occurrences less than the avg** while the aspects *party* with value *MDB*, *alignment with value in line with government*, and *proposition* with values *MPV* and *PEC* have **the number of occurrences greater than the avg**.



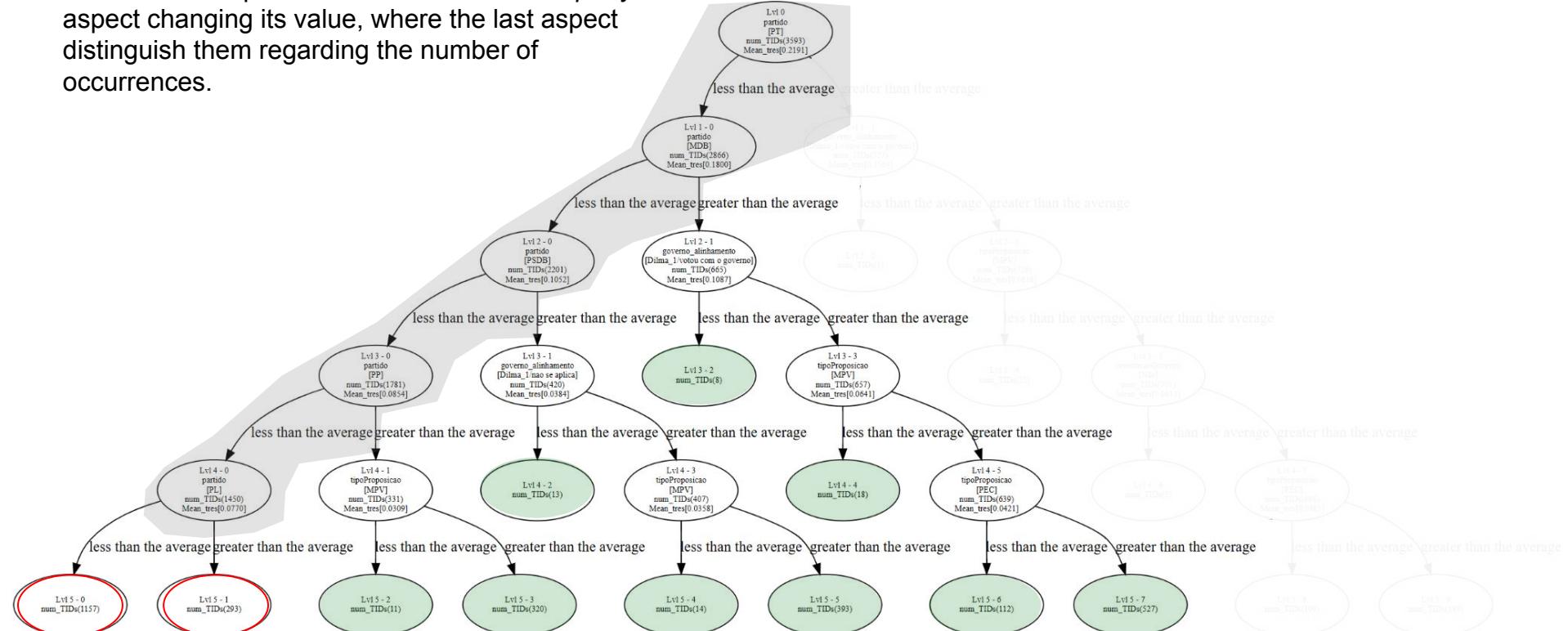
3.1.2. Dilma (1° term)



- Considering the aspects, this is a cluster where the majority of votes are from deputies of MDB party that mainly voted to support the government (84.74%). Moreover, this group participated more to vote on MPV and PEC propositions.
- 41.83% (6469) of votes to support the government occurred in 2013. Similar to this, 46.44% (1294) of the against votes were in 2013.
- All deputies voted at least once against the government, which represents 72.97% of the number of MDB deputies.
- This group has, on avg, $63.1\% \pm 18.71\%$ of presence during the period with a coefficient of variance equal to 29.65% (very high).

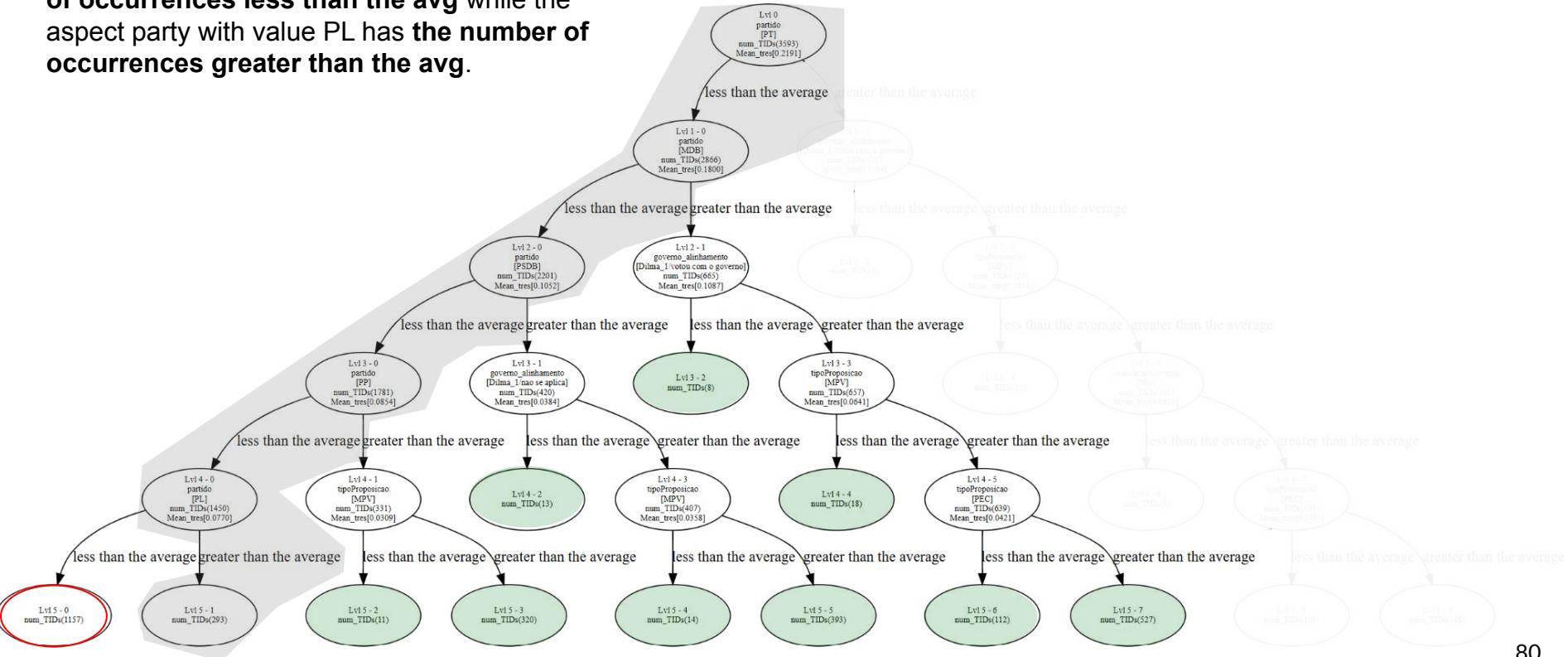
3.1.2. Dilma (1° term)

- Clusters 5-0 and 5-1 share the same aspect path.
- The relevant aspect for these clusters is the *party* aspect changing its value, where the last aspect distinguish them regarding the number of occurrences.

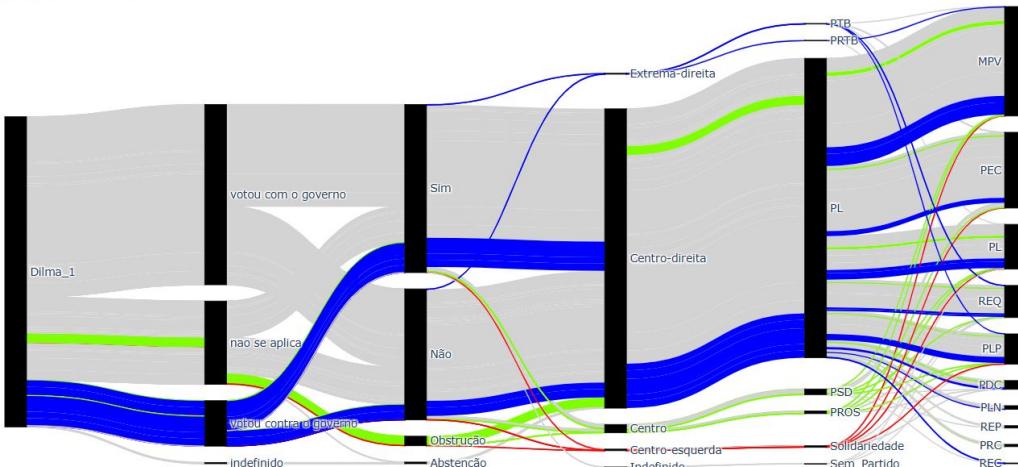
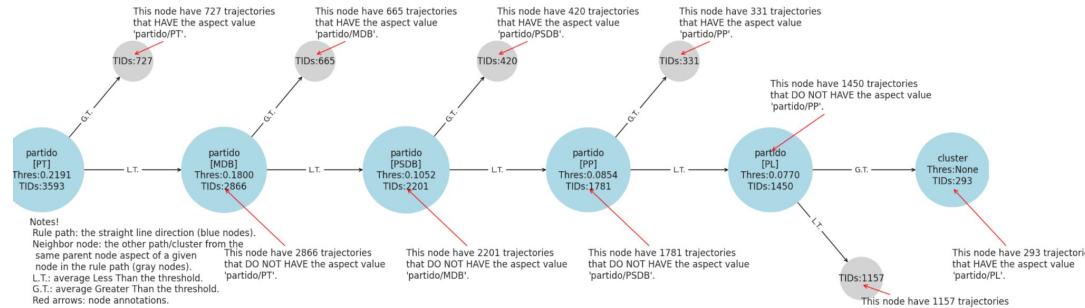


3.1.2. Dilma (1° term)

- In the cluster 5-1, the relevant aspects *party* with values *PT*, *MDB*, *PSDB*, and *PP* have **the number of occurrences less than the avg** while the aspect *party* with value *PL* has **the number of occurrences greater than the avg**.



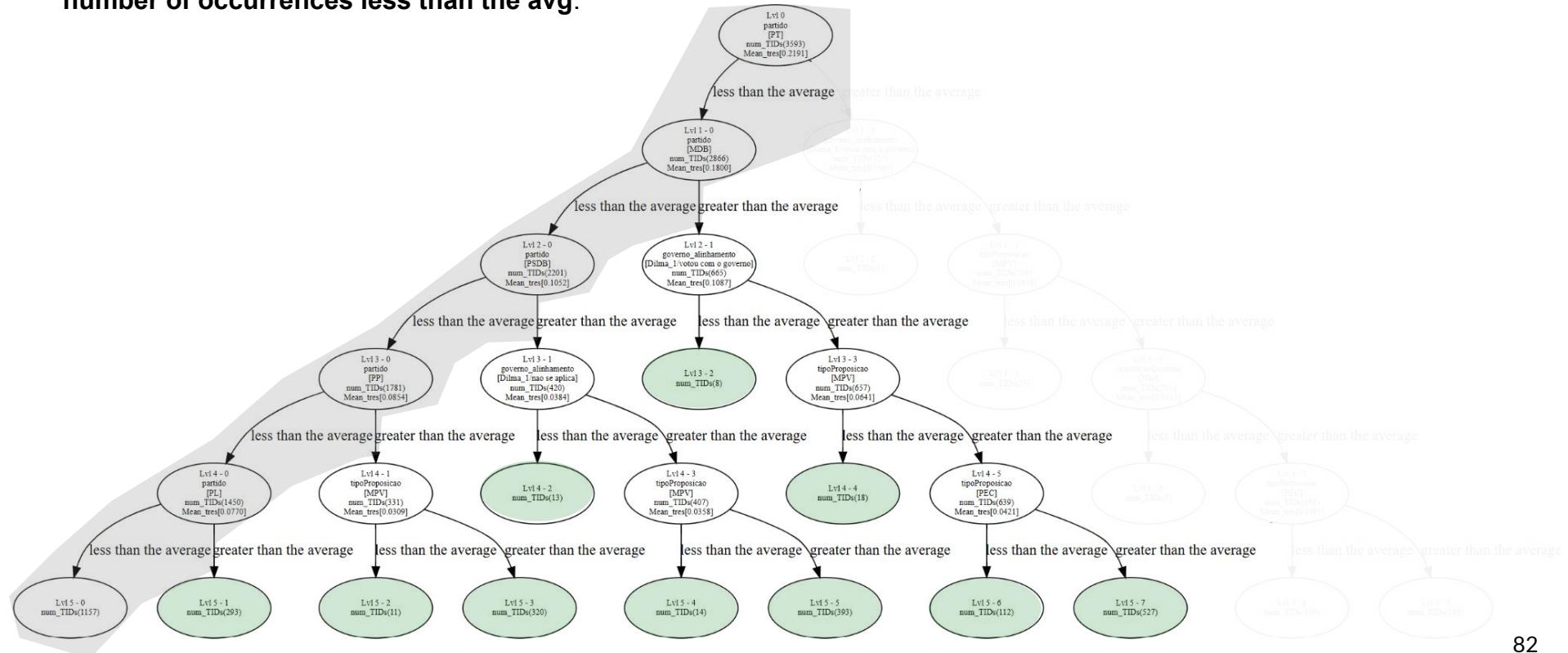
3.1.2. Dilma (1° term)



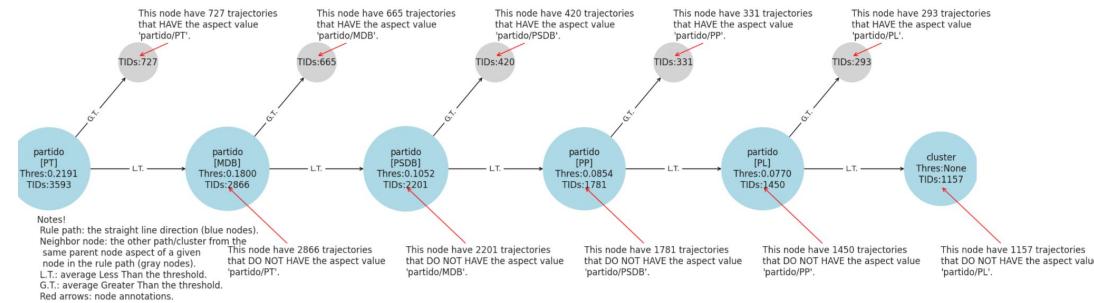
- Considering the aspects, this is a cluster where the parties PT, MDB, PSDB, and PP are not present. Furthermore, the majority of votes are to support the government (82.25%), but the PL party also made the opposition. Moreover, this group participated more to vote on MPV, PEC and PL propositions.
- 36.95% (2797) of votes to support the government occurred in 2013. Similar to this, 30.38% (496) of the against votes were in 2013.
- 98% (49) of the deputies voted at least once against the government. 74% (37) of PL deputies are in this group.
- This group has, on avg, **60.02%±20.86%** of presence during the period with a coefficient of variance equal to **34.76%** (very high).

3.1.2. Dilma (1° term)

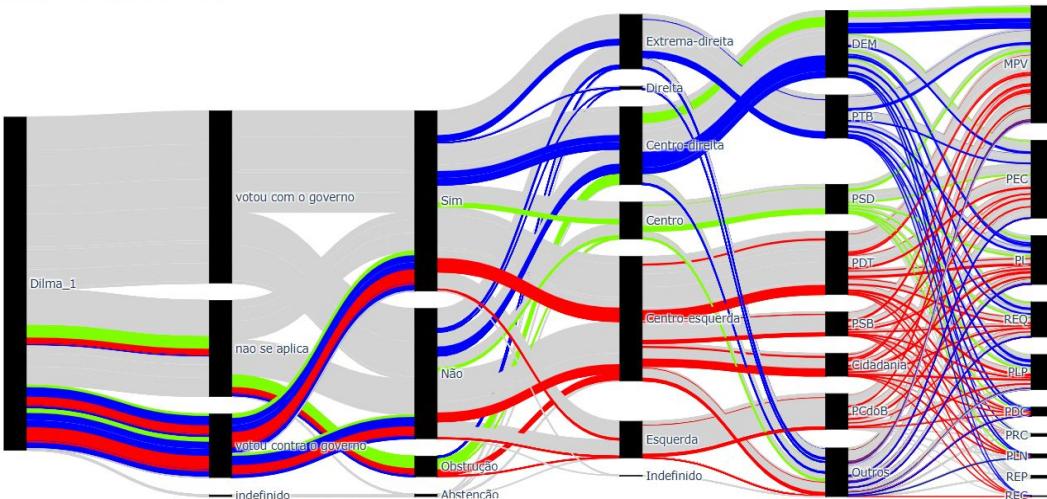
- In the cluster 5-0, the relevant aspects *party* with values *PT*, *MDB*, *PSDB*, *PP*, and *PL* have the number of occurrences less than the avg.



3.1.2. Dilma (1° term)

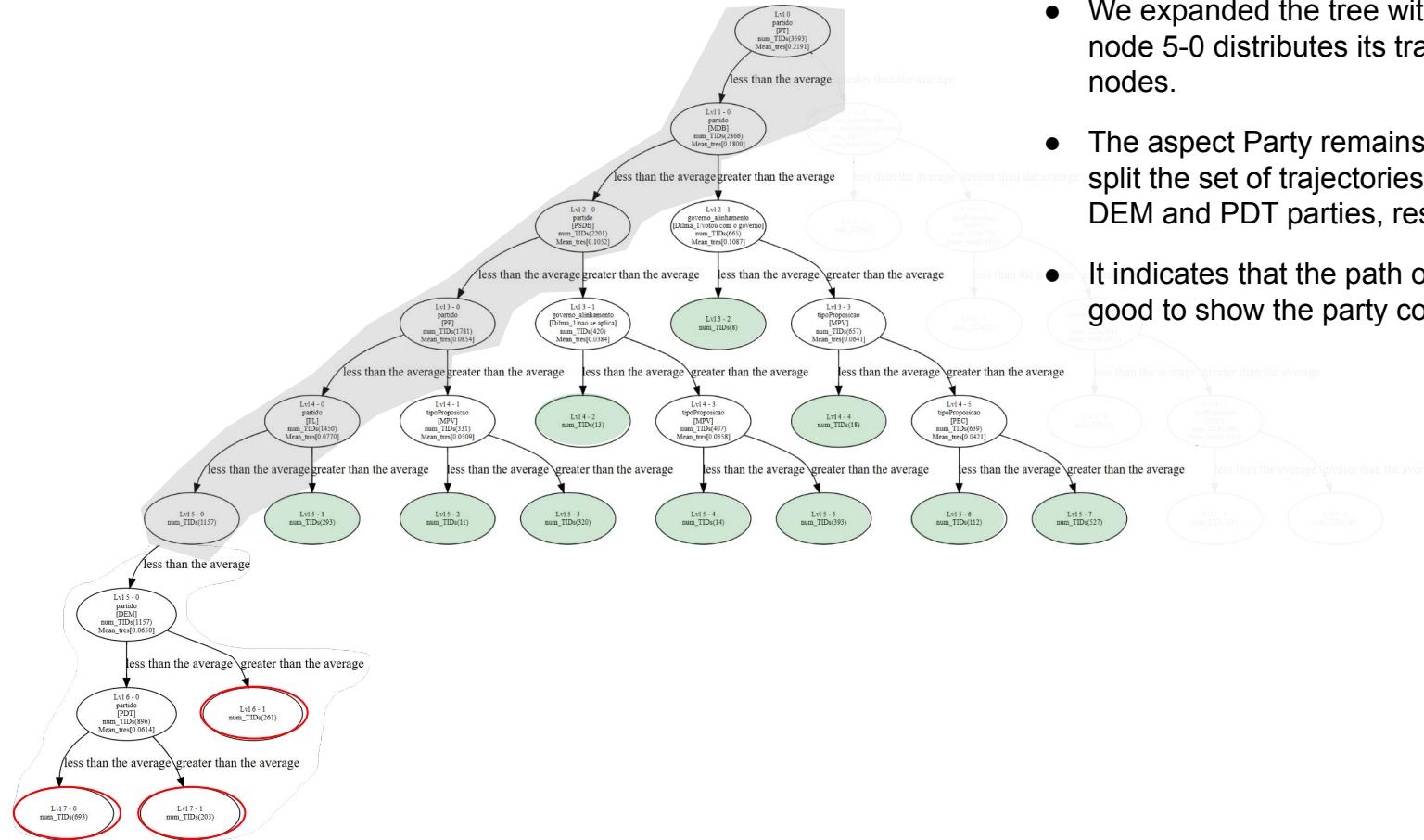


- Considering the aspects, this is a cluster where the parties PT, MDB, PSDB, PP, and PL are not present. Furthermore, the majority of votes are to support the government (74.78%). Moreover, this group participated more to vote on MPV and PEC propositions.
- 35.11% (9802) of votes to support the government occurred in 2013. Similar to this, 33.5% (3154) of the against votes were in 2013.
- 96.45% (272) of the deputies voted at least once against the government.
- This group has, on avg, $62.56\% \pm 20.17\%$ of presence during the period with a coefficient of variance equal to 32.24% (very high).



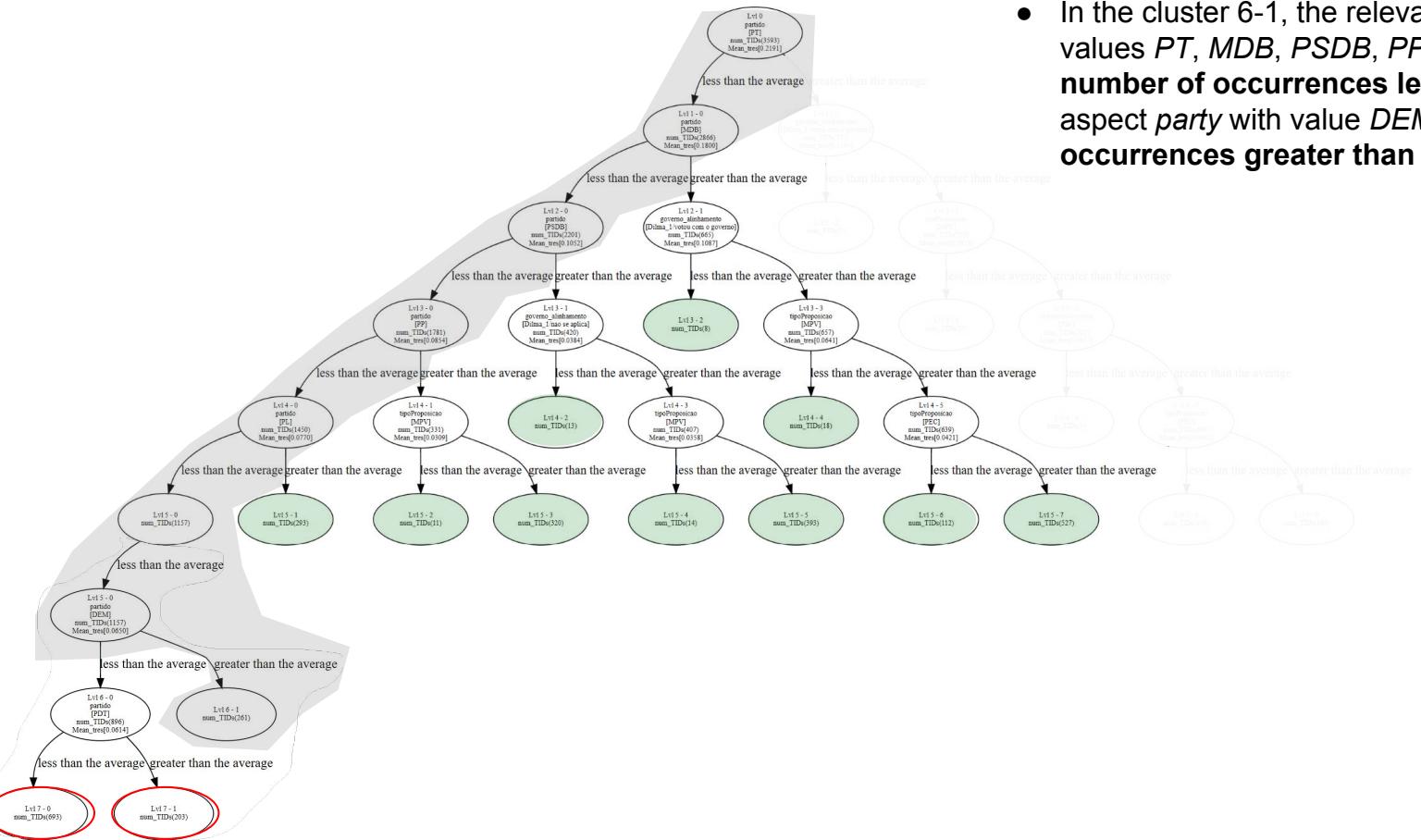
3.1.2. Dilma (1° term): expanding cluster 5-0

- We expanded the tree with two levels to check how node 5-0 distributes its trajectories in the child nodes.
- The aspect Party remains as the most relevant to split the set of trajectories. The chosen values were DEM and PDT parties, respectively.
- It indicates that the path on this side of the tree is good to show the party concentration.

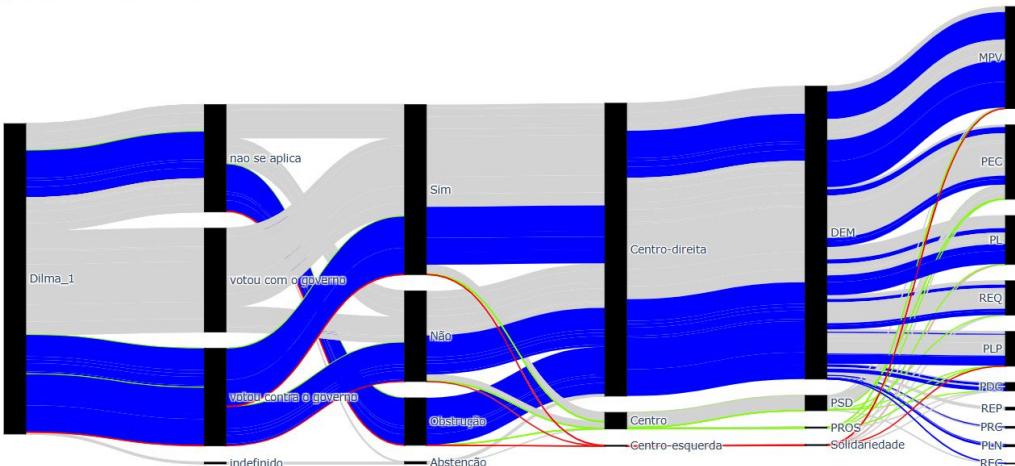
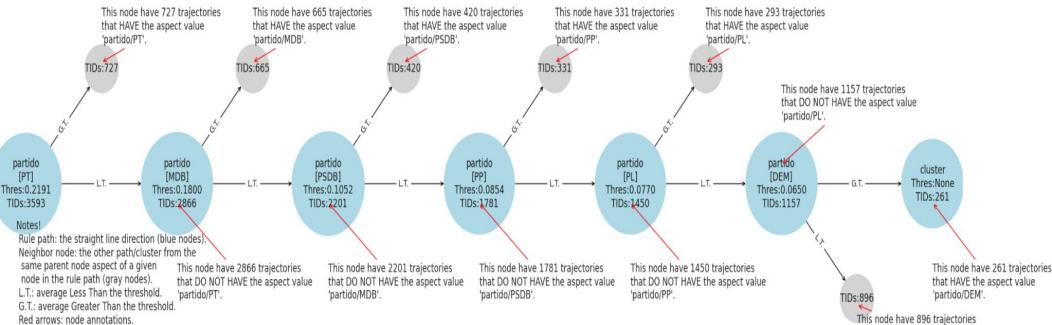


3.1.2. Dilma (1° term): expanding cluster 5-0

- In the cluster 6-1, the relevant aspects *party* with values *PT*, *MDB*, *PSDB*, *PP*, and *PL* have the **number of occurrences less than the avg** while aspect *party* with value *DEM* has the **number of occurrences greater than the avg**.



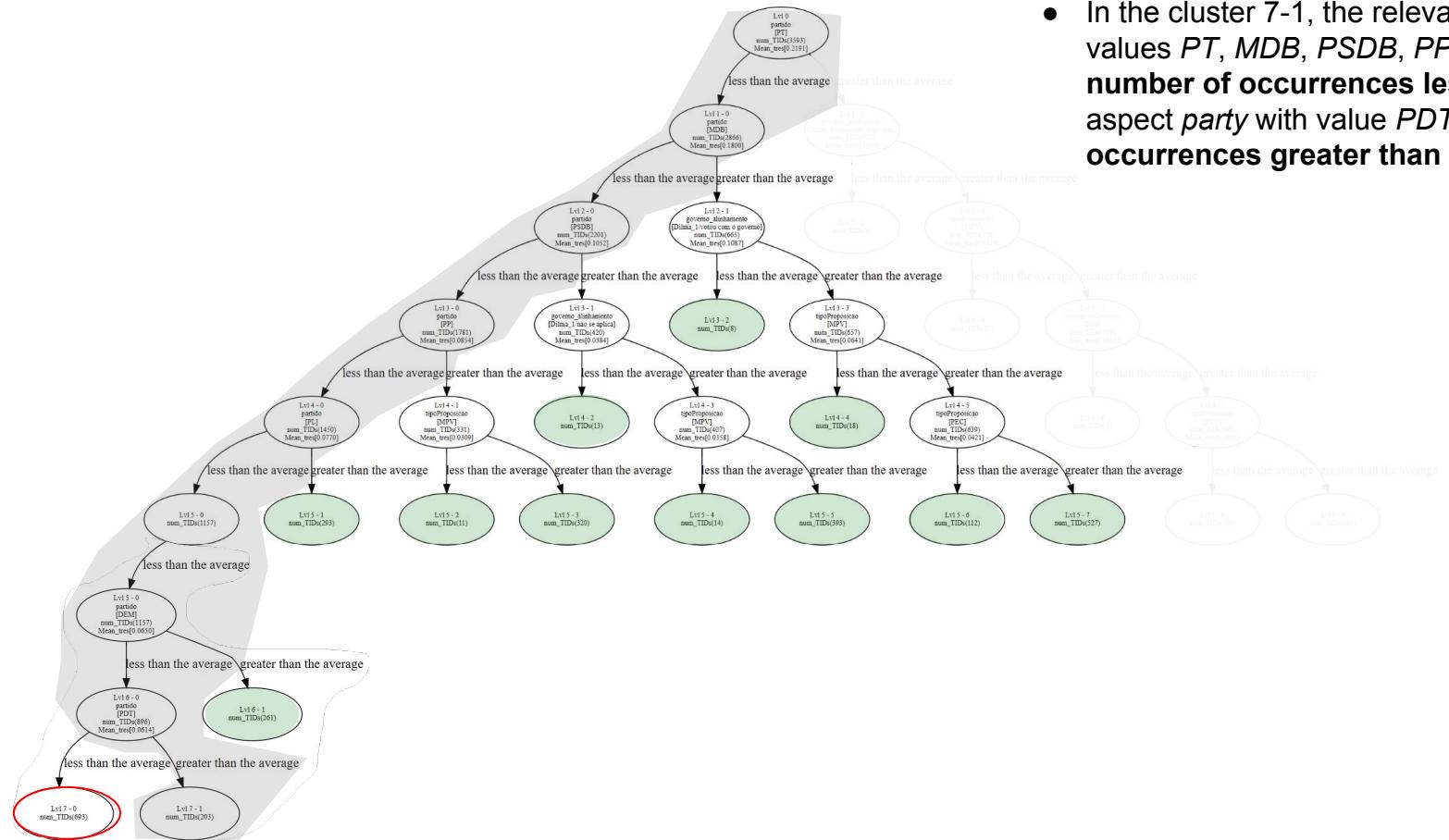
3.1.2. Dilma (1° term): expanding cluster 5-0



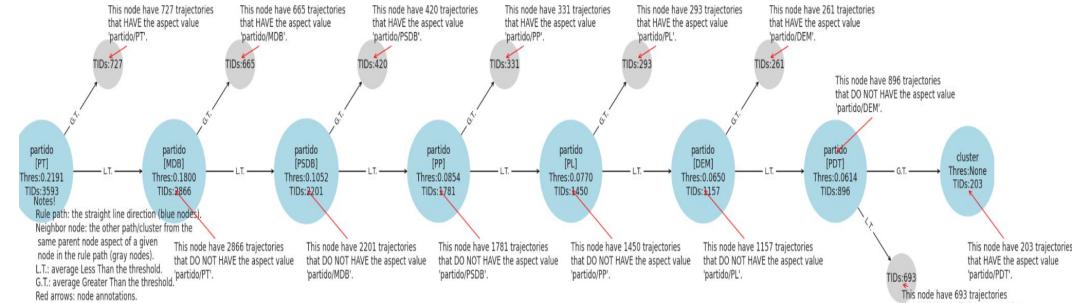
- Considering the aspects, this is a cluster where the majority of votes are from DEM party. 53.31% of the votes were to support the government. However, it is a very divided cluster on the issue of government support. Regarding the opposition, the focus was the MPV proposition.
- 36.48% (1545) of votes to support the government occurred in 2013 while 39.01% (3154) of the against votes occurred in 2011.
- 98.14% (53) of the deputies voted at least once against the government.
- This group has, on avg, 59.32%±19.39% of presence during the period with a coefficient of variance equal to 32.69% (very high dispersion).

3.1.2. Dilma (1° term): expanding cluster 5-0

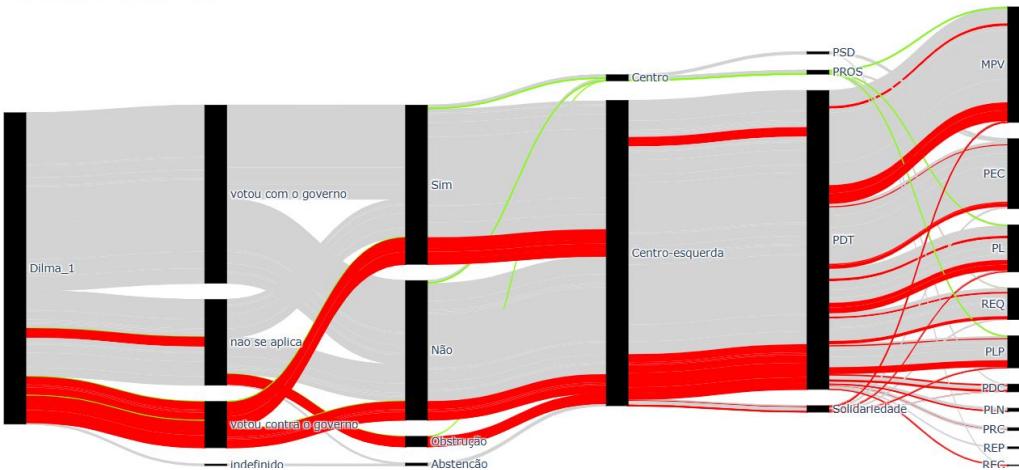
- In the cluster 7-1, the relevant aspects *party* with values *PT*, *MDB*, *PSDB*, *PP*, *PL* and *DEM* have **the number of occurrences less than the avg** while aspect *party* with value *PDT* has **the number of occurrences greater than the avg**.



3.1.2. Dilma (1° term): expanding cluster 5-0



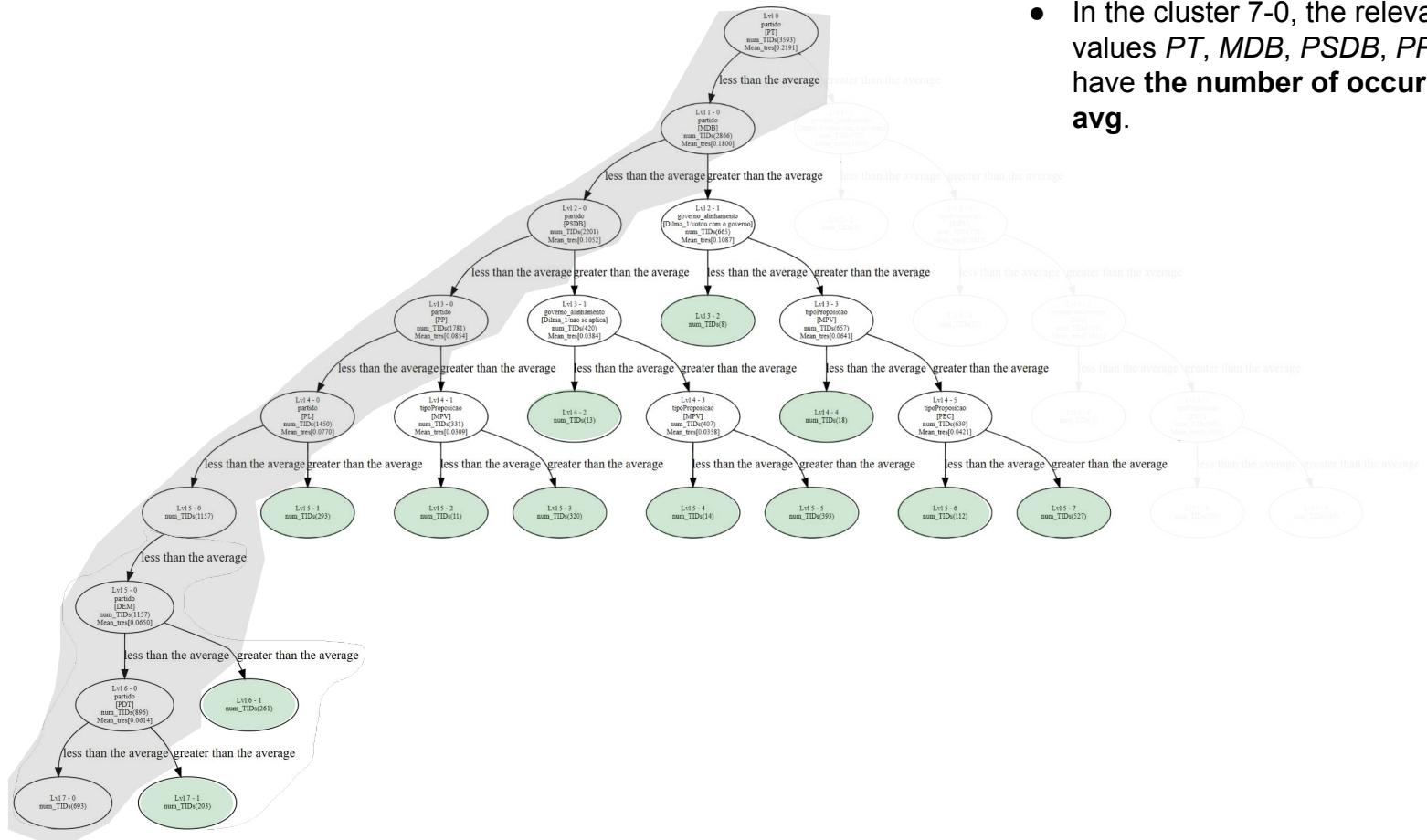
Node: Lvl 7 - 1; Split: max_red; Government: Dilma_1
TIDs: 203; Unique deputies: 36; Total votes: 7375; avg_len: 36.33 ± 16.63
from 2011-02-15 to 2014-12-17



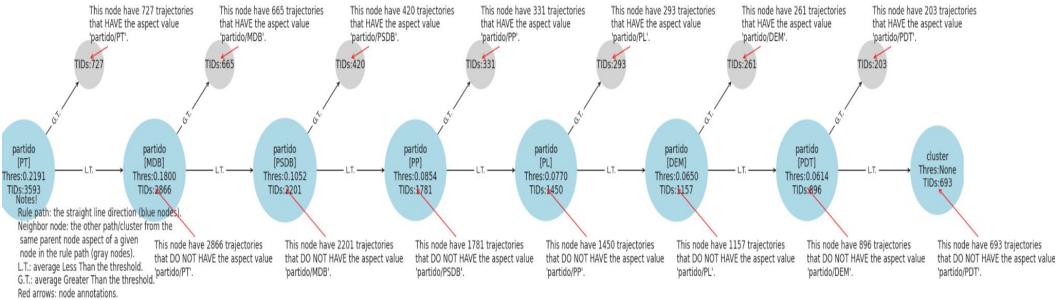
- Considering the aspects, this is a cluster where the majority of votes are from PDT party. Although 81.31% of the votes were to support the government, the PDT also made opposition during this period.
- 38.05% (1213) of votes to support the government occurred in 2013 while 42.43% (569) of the against votes occurred in the same year.
- 94.44% (34) of the deputies voted at least once against the government.
- This group has, on avg, **68.55%±19.34%** of presence during the period with a coefficient of variance equal to **28.21%** (high dispersion).

3.1.2. Dilma (1° term): expanding cluster 5-0

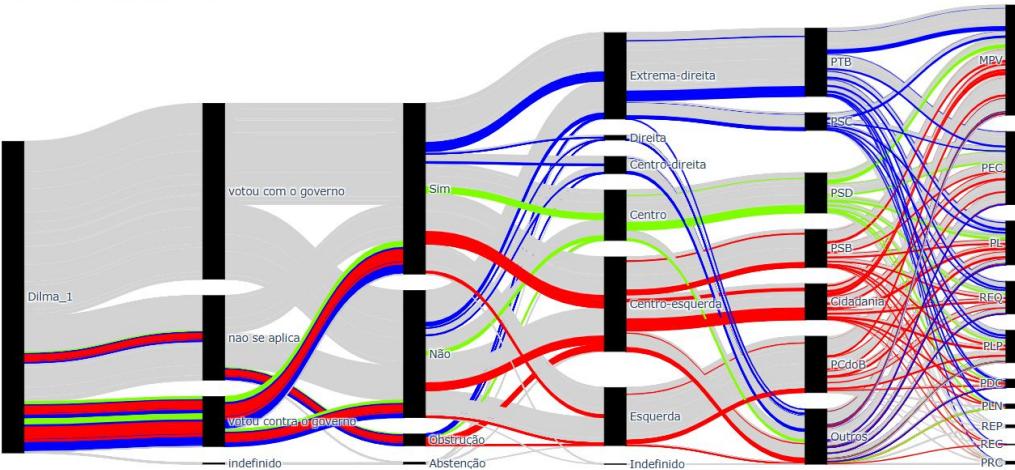
- In the cluster 7-0, the relevant aspects *party* with values *PT*, *MDB*, *PSDB*, *PP*, *PL*, *DEM* and *PDT* have the **number of occurrences less than the avg.**



3.1.2. Dilma (1° term): expanding cluster 5-0



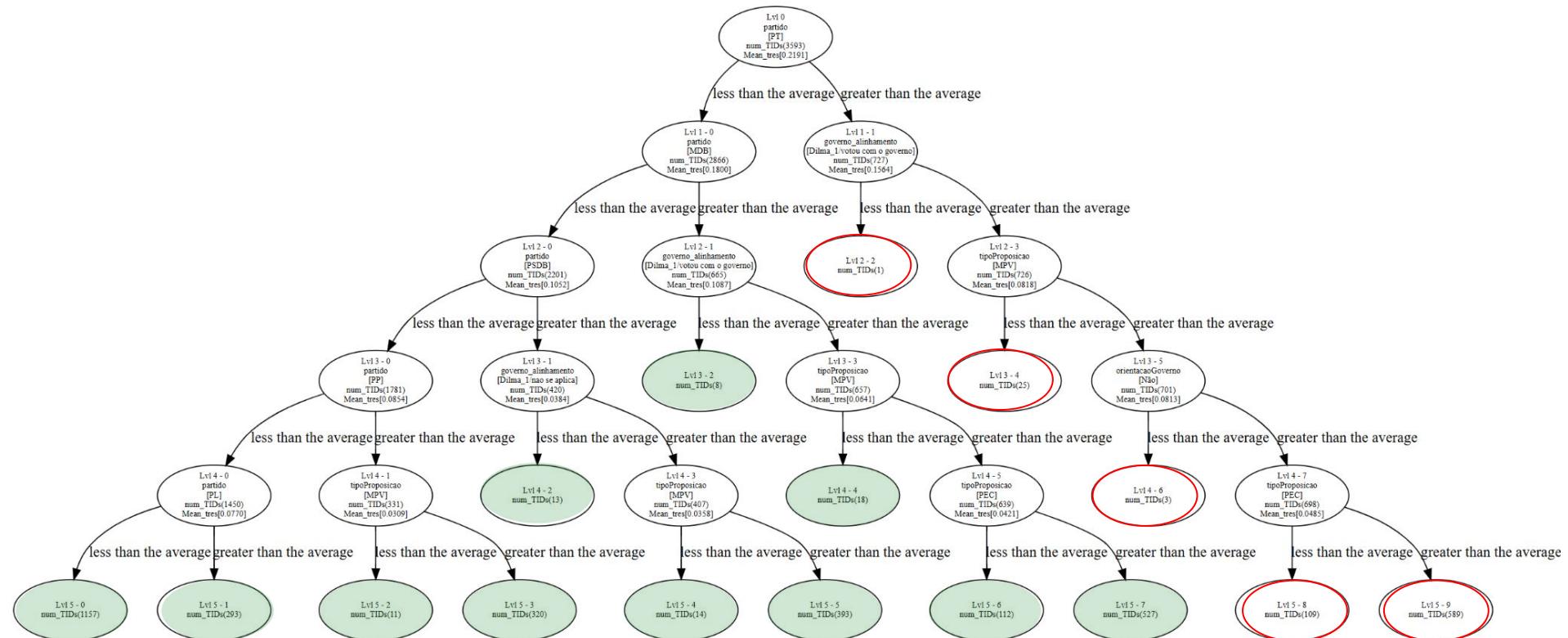
Node: Lvl 7 - 0; Split: max_red; Government: Dilma_1
TIDs: 693; Unique deputies: 218; Total votes: 22011; avg_len: 31.76 ± 15.58
from 2011-02-15 to 2014-12-17



- Considering the aspects, this is a cluster where the majority of votes were to support the government (80.17%).
- 33.78% (5961) of votes to support the government occurred in 2013 while 37.21% (1624) of the against votes occurred in the same year.
- 45.65% (1992) of the opposition votes were from Center-left parties.
- 95.87% (209) of the deputies voted at least once against the government.
- This group has, on avg, **62.02%±20.37%** of presence during the period with a coefficient of variance equal to **32.84%** (very high dispersion).

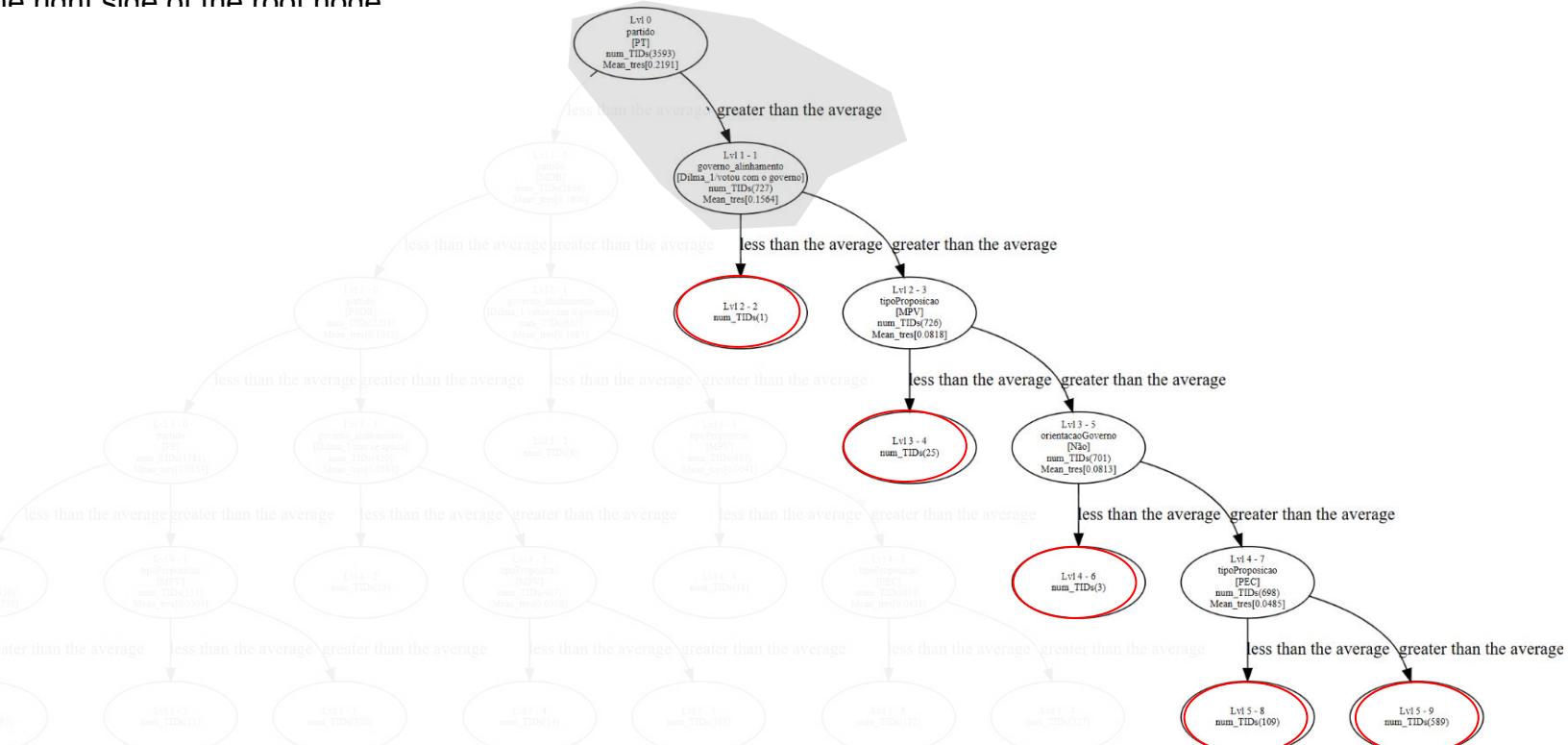
3.1.2. Dilma (1° term)

- 5 clusters on right side of the root node.
- 2 clusters with at most 8 trajectories.



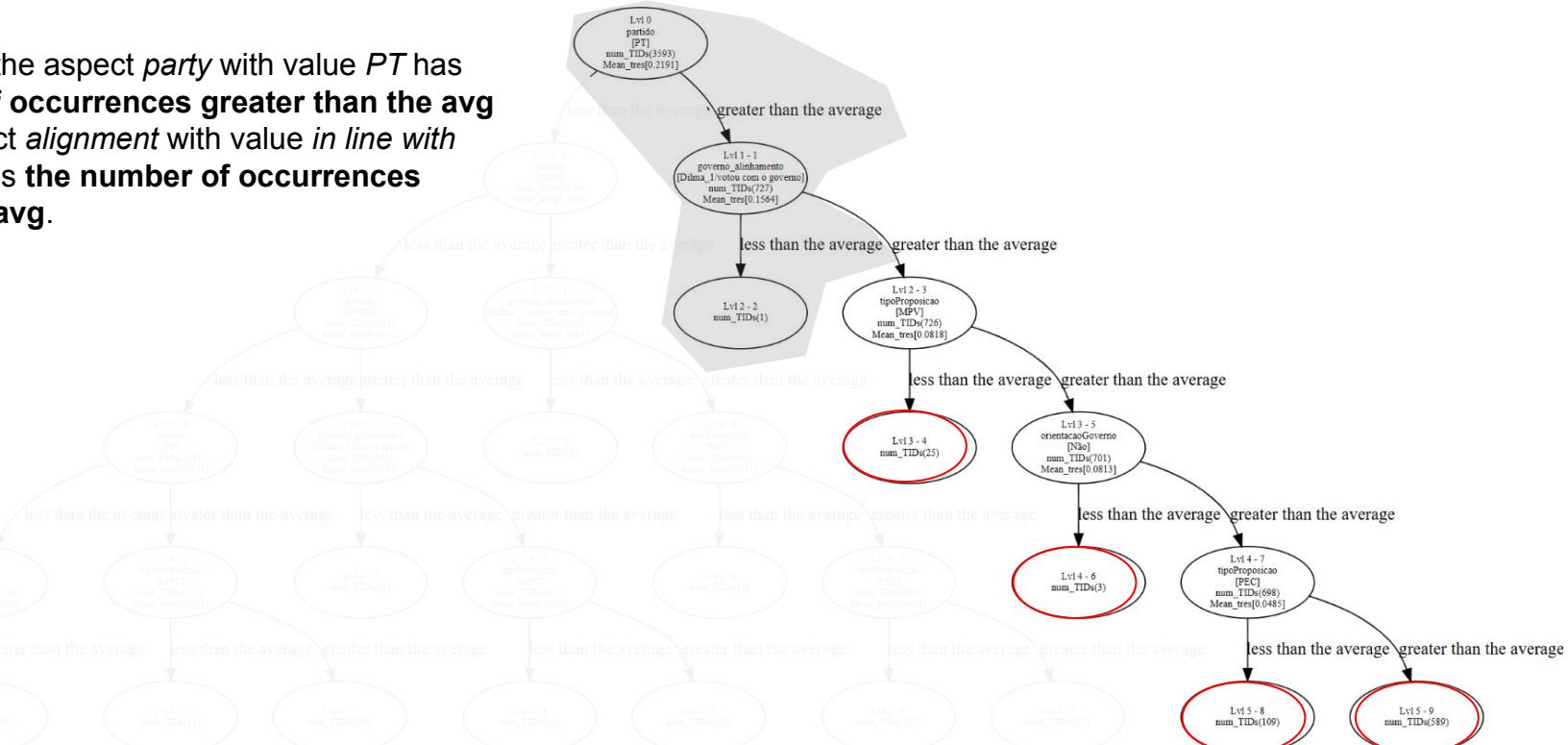
3.1.2. Dilma (1° term)

- The aspects party with value PT, and alignment with value in line with government are in common to all clusters in the right side of the root node



3.1.2. Dilma (1° term)

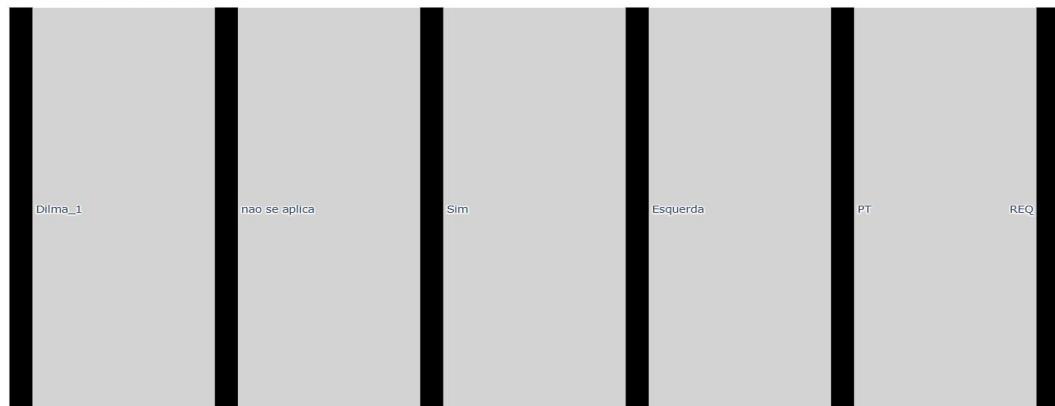
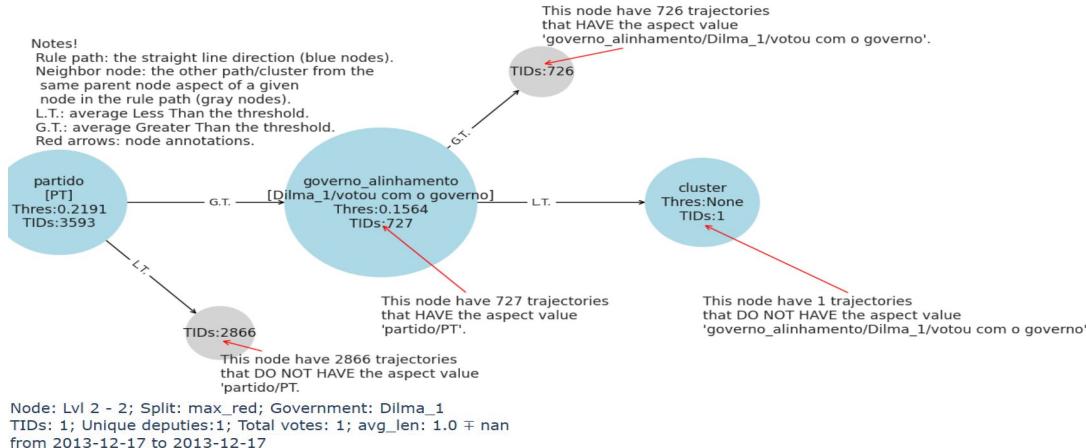
- Cluster 2-2 is the one that stay on the left side for aspect *alignment* with value *in line with government*.
- In this cluster, the aspect *party* with value *PT* has **the number of occurrences greater than the avg** while the aspect *alignment* with value *in line with government* has **the number of occurrences less than the avg**.



3.1.2. Dilma (1° term)

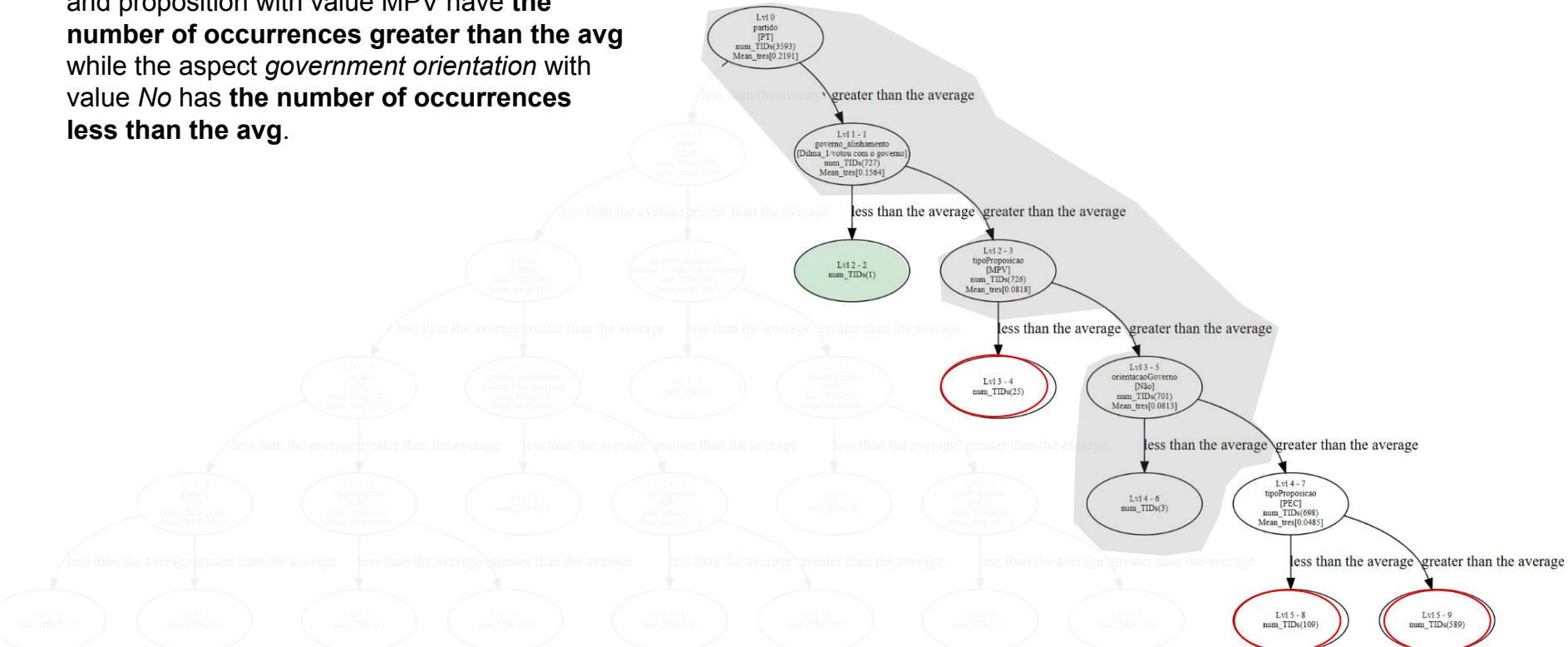
- Considering the aspects, this is a cluster of one vote from a deputy of PT that participated on REQ proposition.
- This deputy did not participate frequently in the 2nd semester of 2013. It shows a ghosting trajectory.

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Helcio Silva	3	1	1	1.54	17/12/13 to 17/12/13



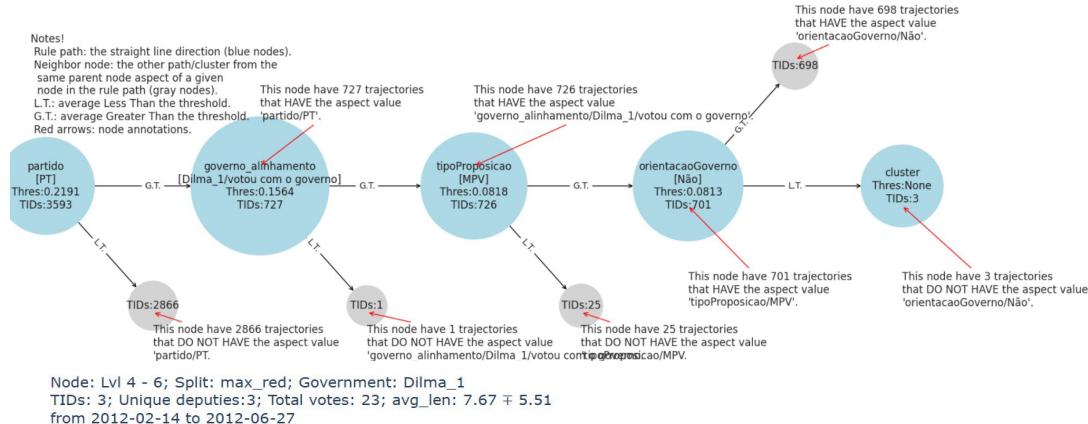
3.1.2. Dilma (1° term)

- In this cluster, the aspect *party* with value *PT*, alignment with value in line with government, and proposition with value *MPV* have **the number of occurrences greater than the avg** while the aspect *government orientation* with value *No* has **the number of occurrences less than the avg**.



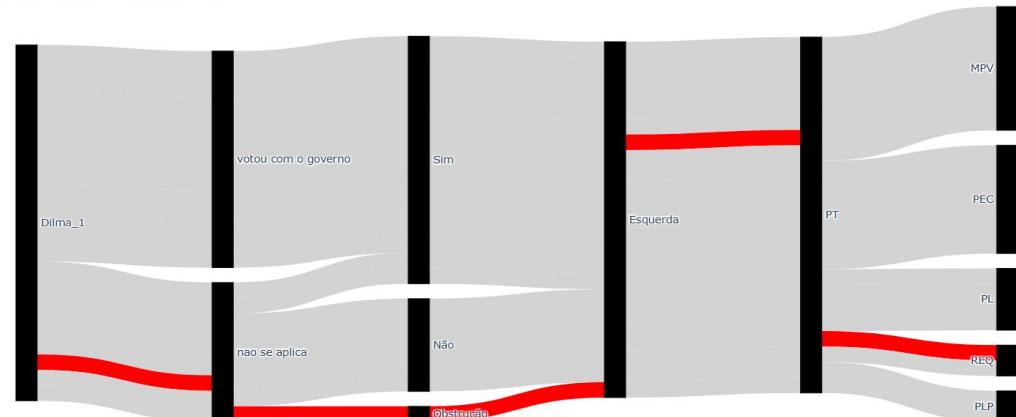
3.1.2. Dilma (1° term)

- Considering the aspects, this is a cluster of votes from deputies of PT that mainly supported the government with focus on MPV proposition.
- The trajectories in this group are not long, it means that the deputies did not participate frequently in parliament. It shows a ghosting trajectory.
- This group has, on avg, **$21.3\% \pm 15.3\%$** of presence during the period with a coefficient of variance equal to **71.83%** (very high).



Opposition (at least once vote)

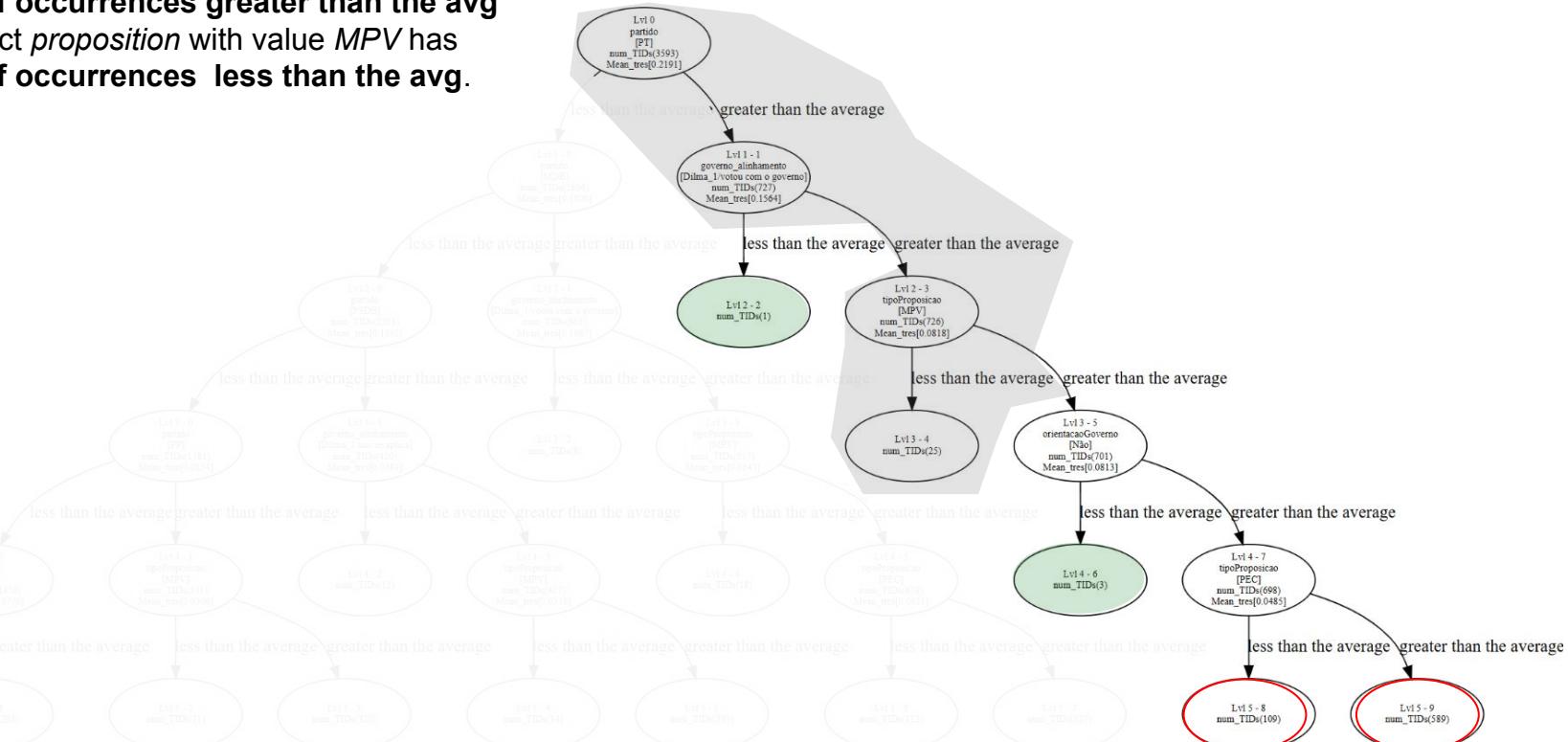
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Paulo Tadeu	2	1	5	13.89	5/6/12 to 27/6/12



* False if there is at least one vote against the government, True otherwise.

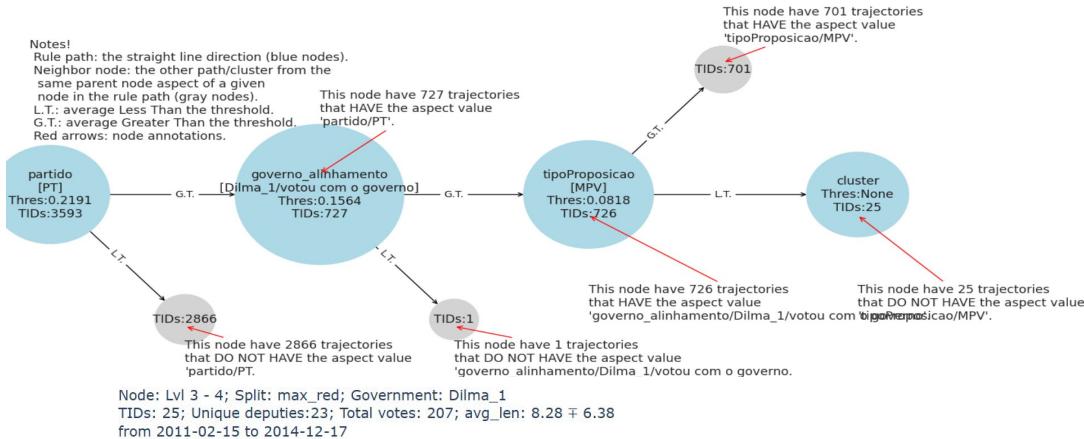
3.1.2. Dilma (1° term)

- In this cluster, the aspect *party* with value *PT*, and *alignment* with value *in line with government* have **the number of occurrences greater than the avg** while the aspect *proposition* with value *MPV* has **the number of occurrences less than the avg**.



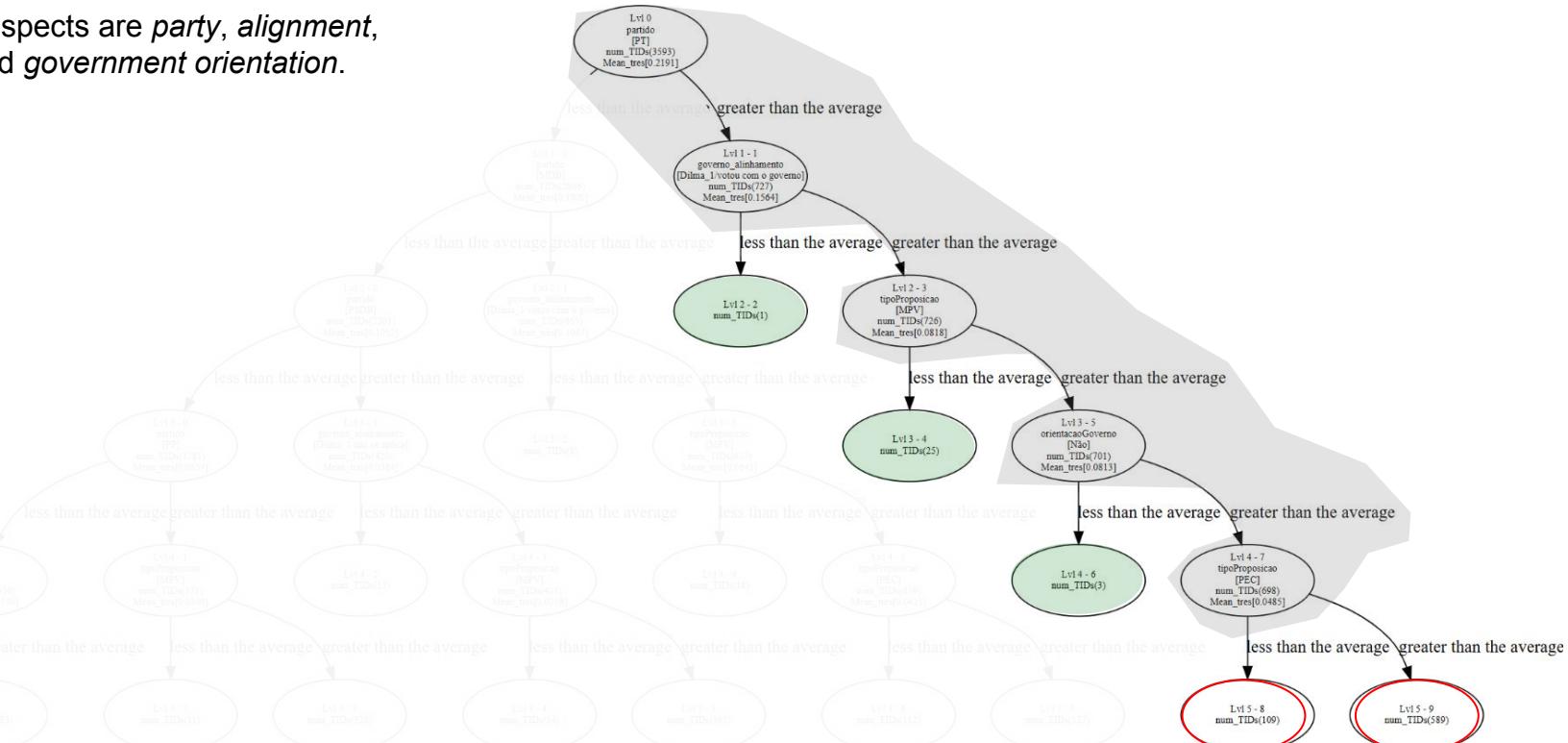
3.1.2. Dilma(1° term)

- Considering the aspects, this is a cluster of votes from deputies of PT that mainly supported the government with focus on PEC proposition.
- The trajectories are not long, it means that the deputies did not participate frequently in parliament.
- 56.7%** (110) of the votes to support the government, and **84.24%** (11) of the against votes occurred in 2014.
- 10 of 23 deputies voted against the government at least once.
- This group has, on avg, **24.98% \pm 20.1%** of presence during the period with a coefficient of variance equal to **71.58%** (very high).



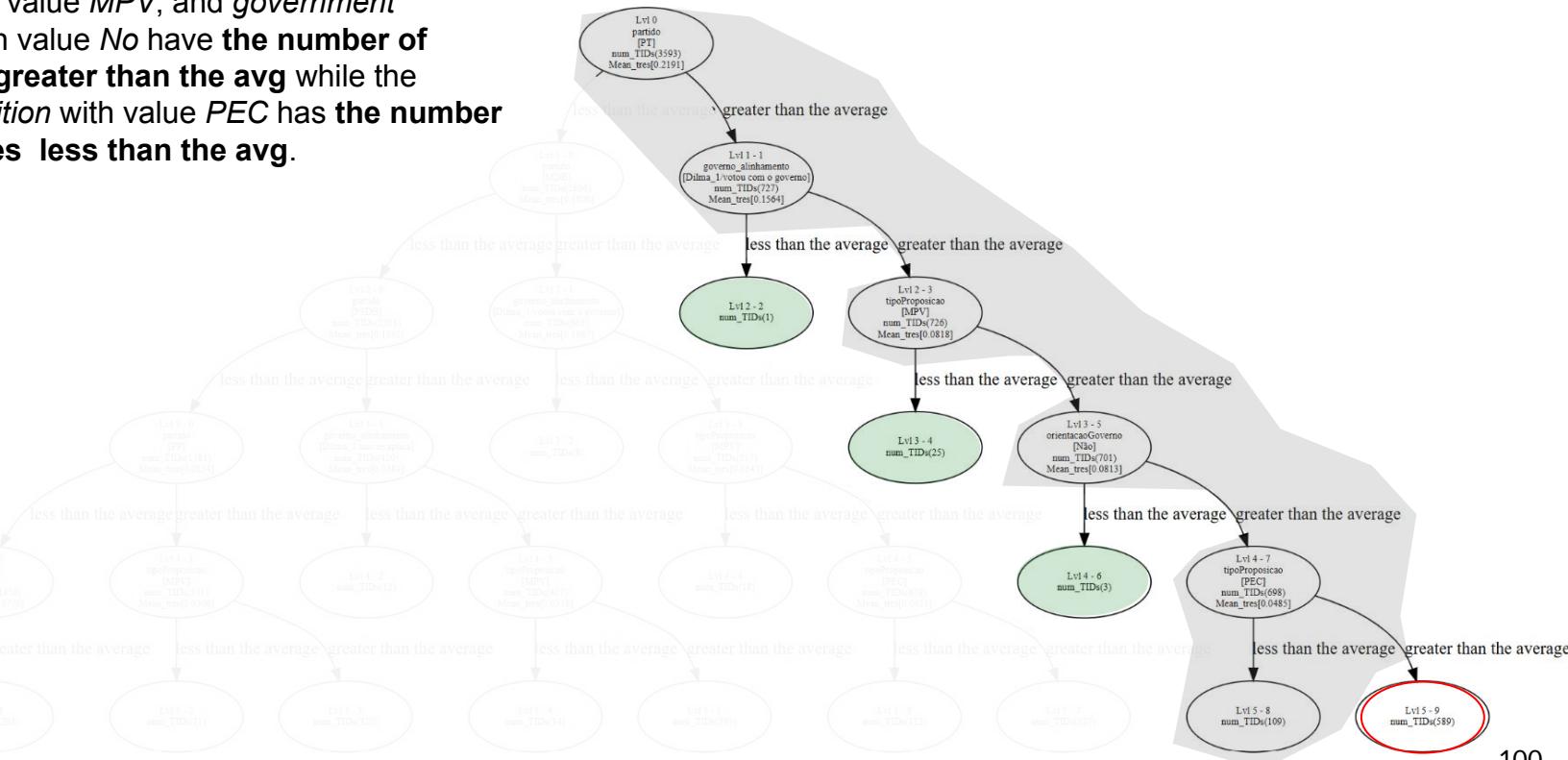
3.1.2. Dilma (1° term)

- Clusters 5-8 and 5-9 share the same relevant aspects.
- The common aspects are *party*, *alignment*, *proposition*, and *government orientation*.



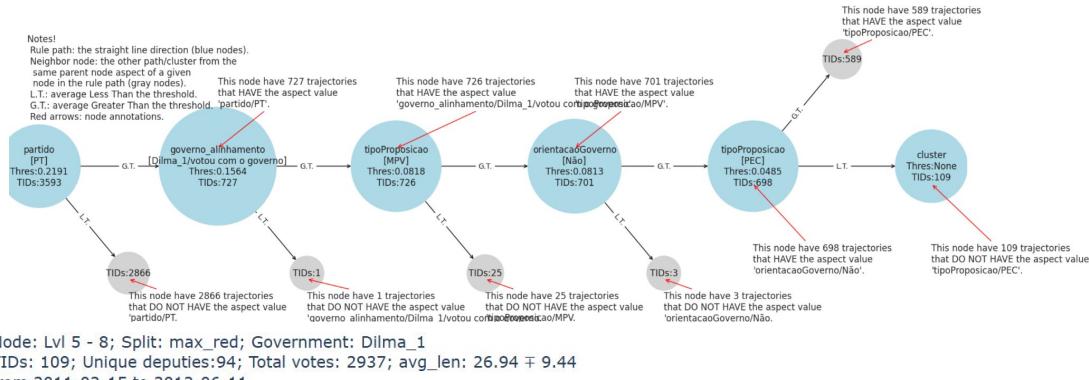
3.1.2. Dilma (1° term)

- In this cluster, the aspect *party* with value *PT*, and *alignment* with value *in line with government*, *alignment* with value *MPV*, and *government orientation* with value *No* have **the number of occurrences greater than the avg** while the aspect *proposition* with value *PEC* has **the number of occurrences less than the avg**.



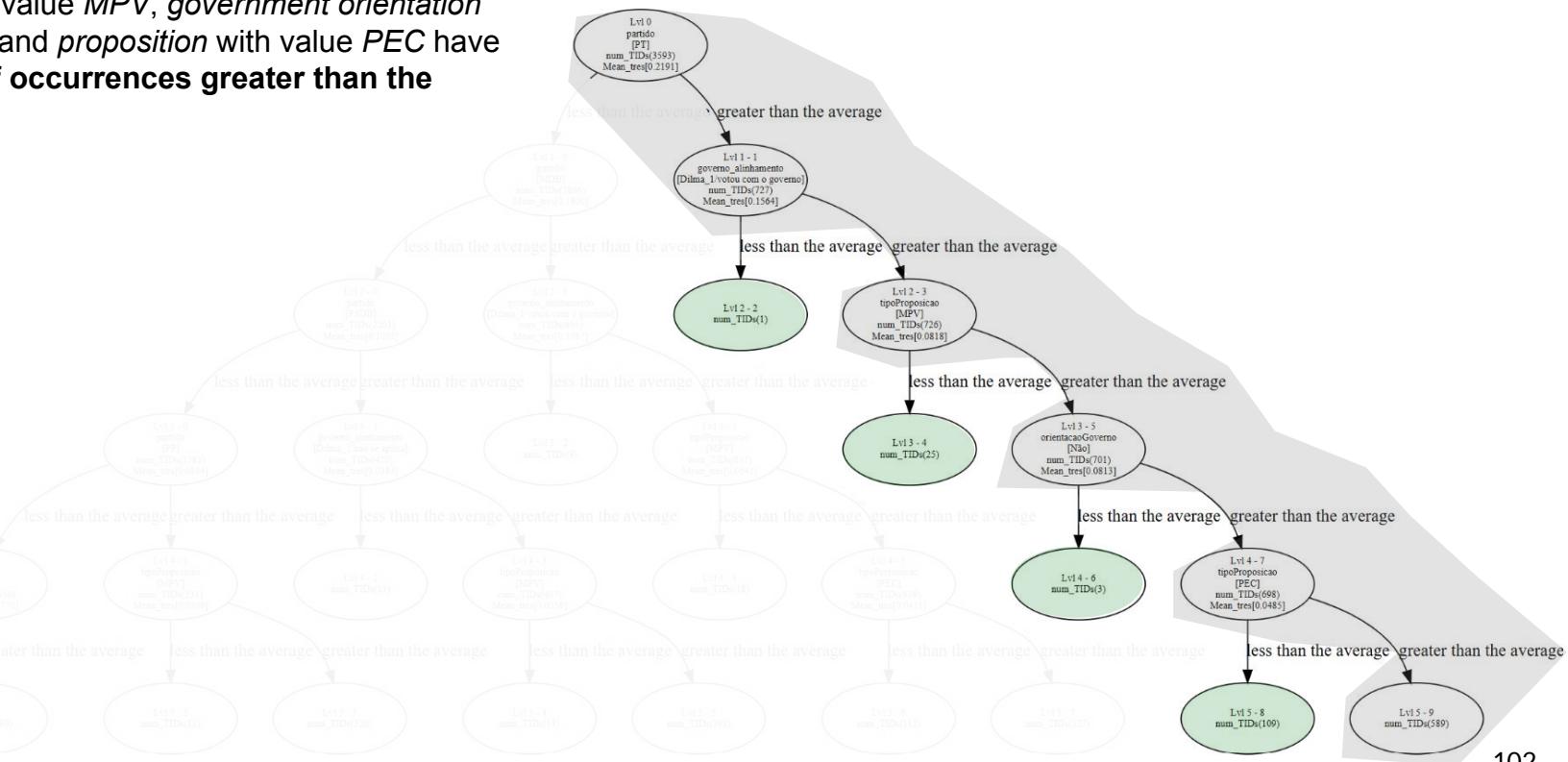
3.1.2. Dilma (1° term)

- Considering the aspects, this is a cluster of votes from deputies of PT that mainly supported the government with focus on MPV proposition.
- Regarding the votes in this cluster, **90.38%** (2565) that supported the government, and **94.95%** (94) of those against, both occurred in the 1° semester of 2011.
- 64 of 94 deputies **voted against the government at least once**. These 64 deputies represent **53.78%** of the elected parliamentarians from PT.
- This group has, on avg, **$66.33\% \pm 24.43\%$** of presence during the period with a coefficient of variance equal to **36.83%** (very high).



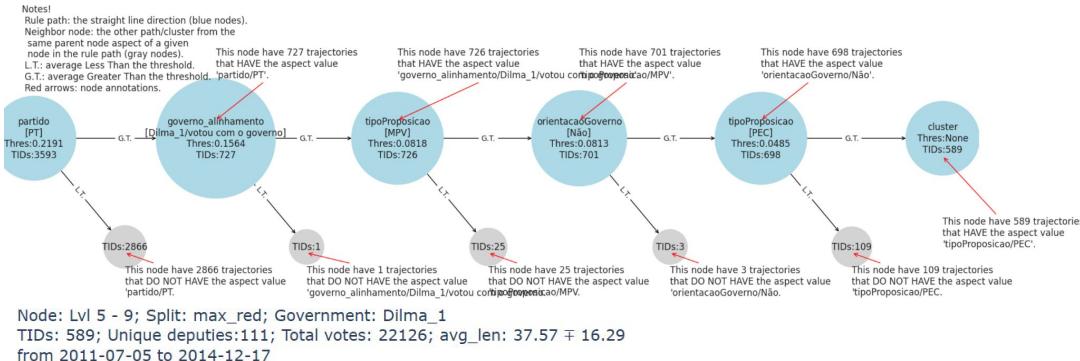
3.1.2. Dilma (1° term)

- In this cluster, the aspect *party* with value *PT*, and *alignment* with value *in line with government*, *alignment* with value *MPV*, *government orientation* with value *No*, and *proposition* with value *PEC* have **the number of occurrences greater than the avg.**



3.1.2. Dilma (1° term)

- Considering the aspects, this is a cluster of votes mainly from deputies of PT that supported the government with focus on MPV and PEC propositions.
- Regarding the votes in this cluster, **41.61%** (8764) that supported the government occurred in 2013, while **43.6%** (94) of those against the government occurred in 2014.
- 93.69%** (104) of the deputies **voted against the government at least once**. 103 deputies are from PT which represent **86.55%** of the elected parliamentarians in the party at this period.
- This group has, on avg, **68.47% \pm 16.73%** of presence during the period with a coefficient of variance equal to **24.43%** (high).



Dilma government (2° term)

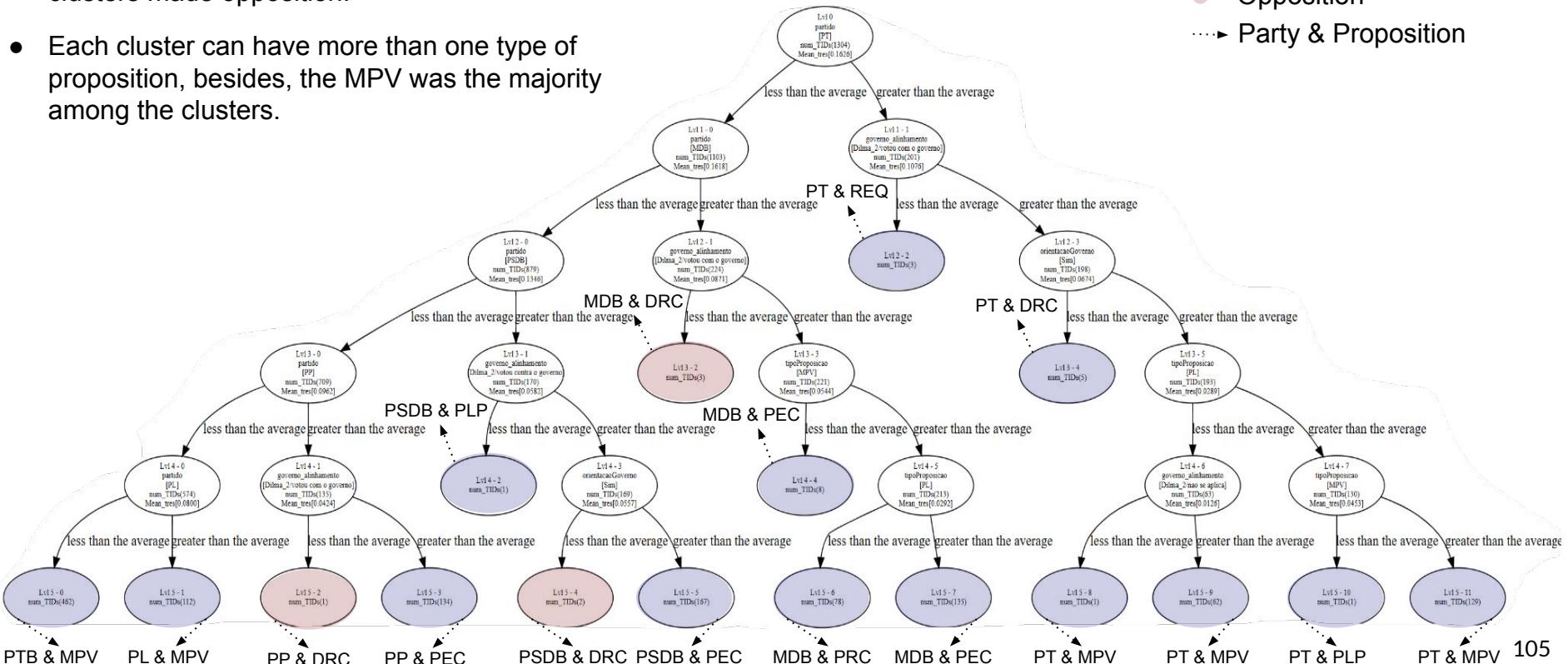
3.1.3. Dilma (2° term): overview support (clusters)

- Regarding the majority of votes in each cluster, 14 clusters have supported the government while 3 clusters made opposition.
- Each cluster can have more than one type of proposition, besides, the MPV was the majority among the clusters.

Legend (majority of votes)

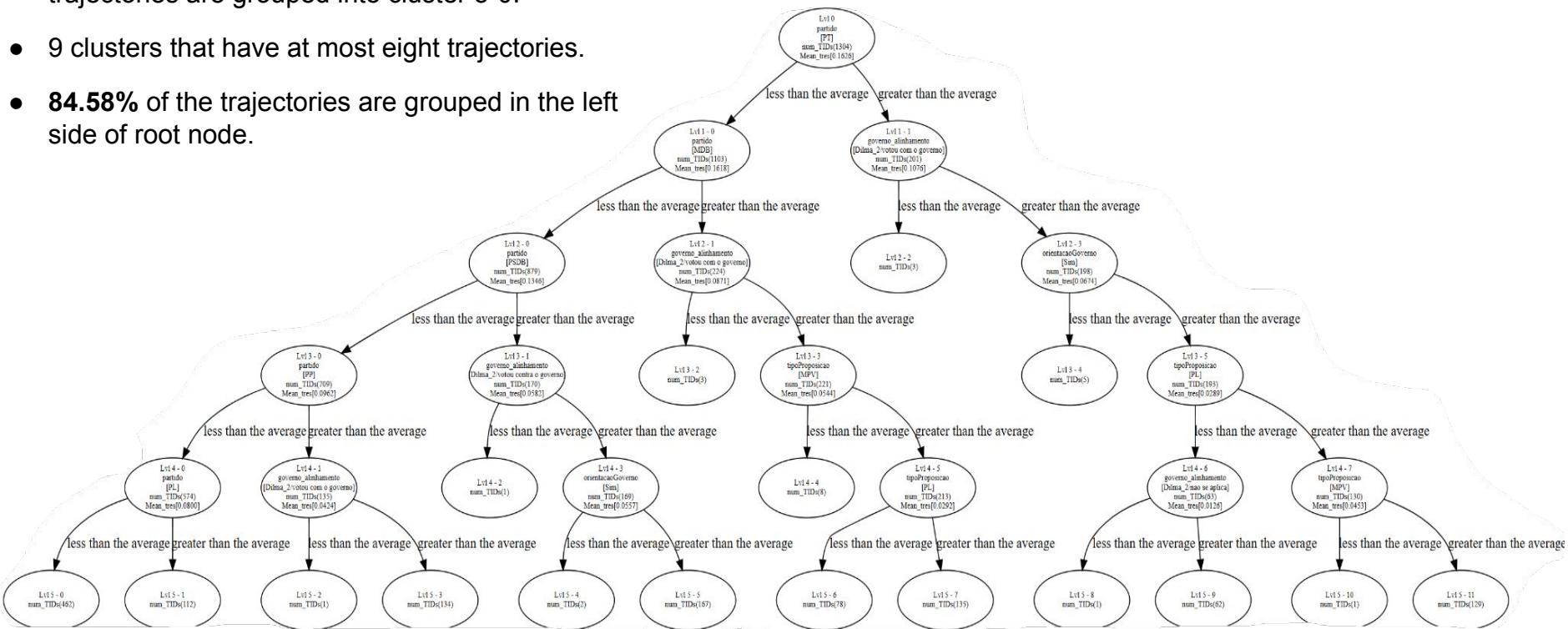
- Support
- Opposition

→ Party & Proposition



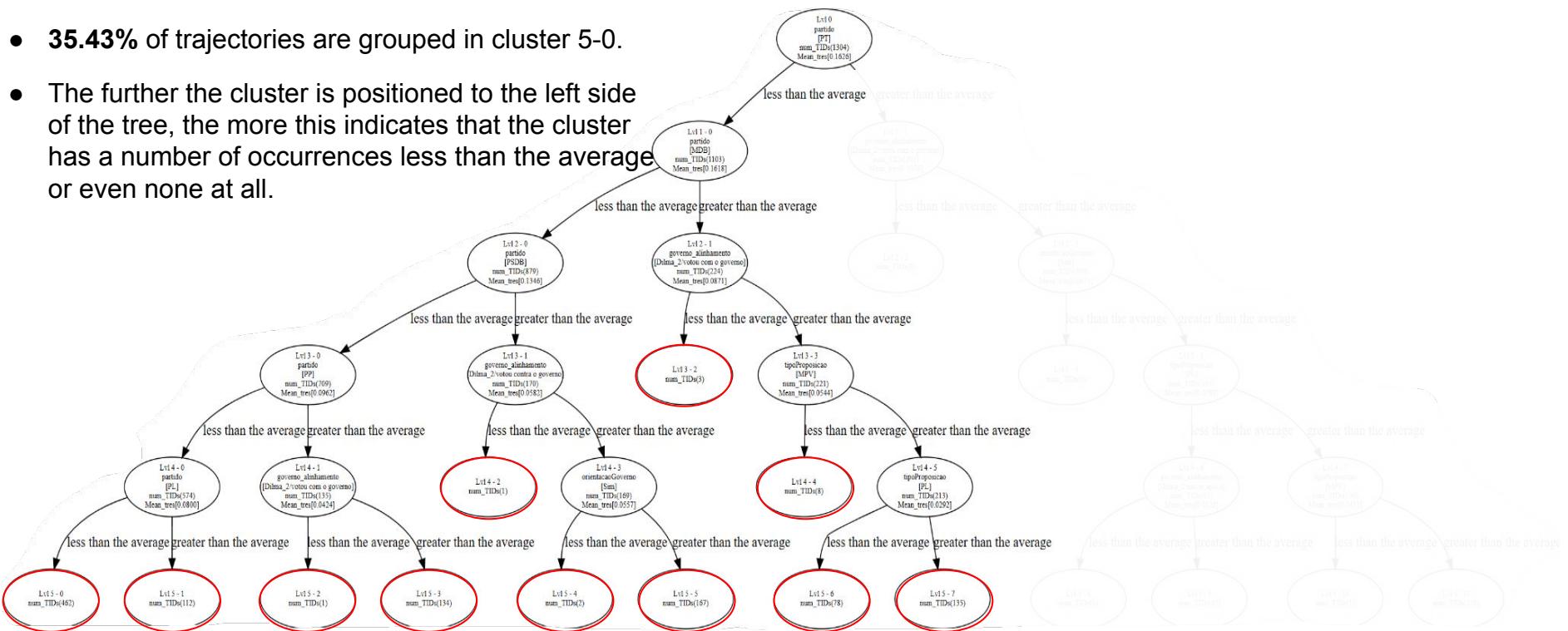
3.1.3. Dilma (2° term)

- 17 clusters, 538 deputies distributed into 31 parties from 3/2/2015 to 4/5/2016. **35.43%** of the trajectories are grouped into cluster 5-0.
- 9 clusters that have at most eight trajectories.
- **84.58%** of the trajectories are grouped in the left side of root node.



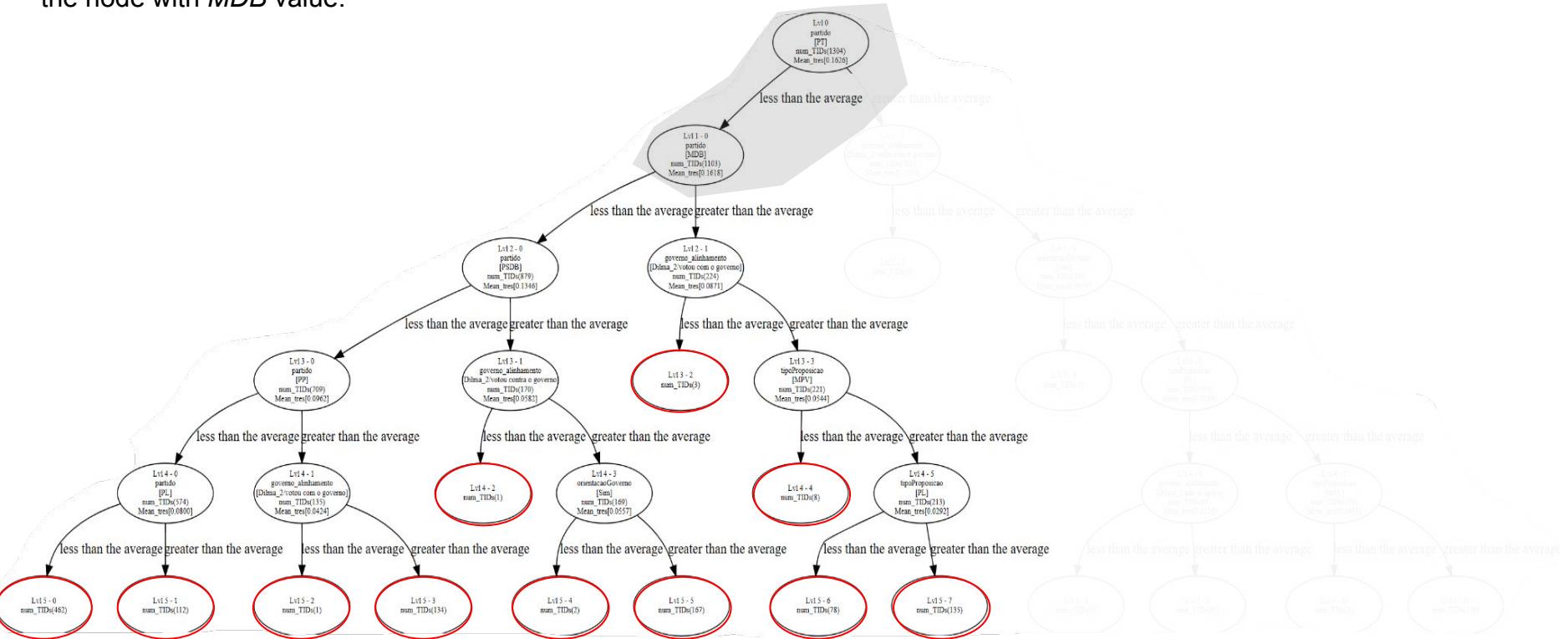
3.1.3. Dilma (2° term)

- 11 clusters in the left side of root node.
- 5 cluster with at most 8 trajectories.
- **35.43%** of trajectories are grouped in cluster 5-0.
- The further the cluster is positioned to the left side of the tree, the more this indicates that the cluster has a number of occurrences less than the average or even none at all.



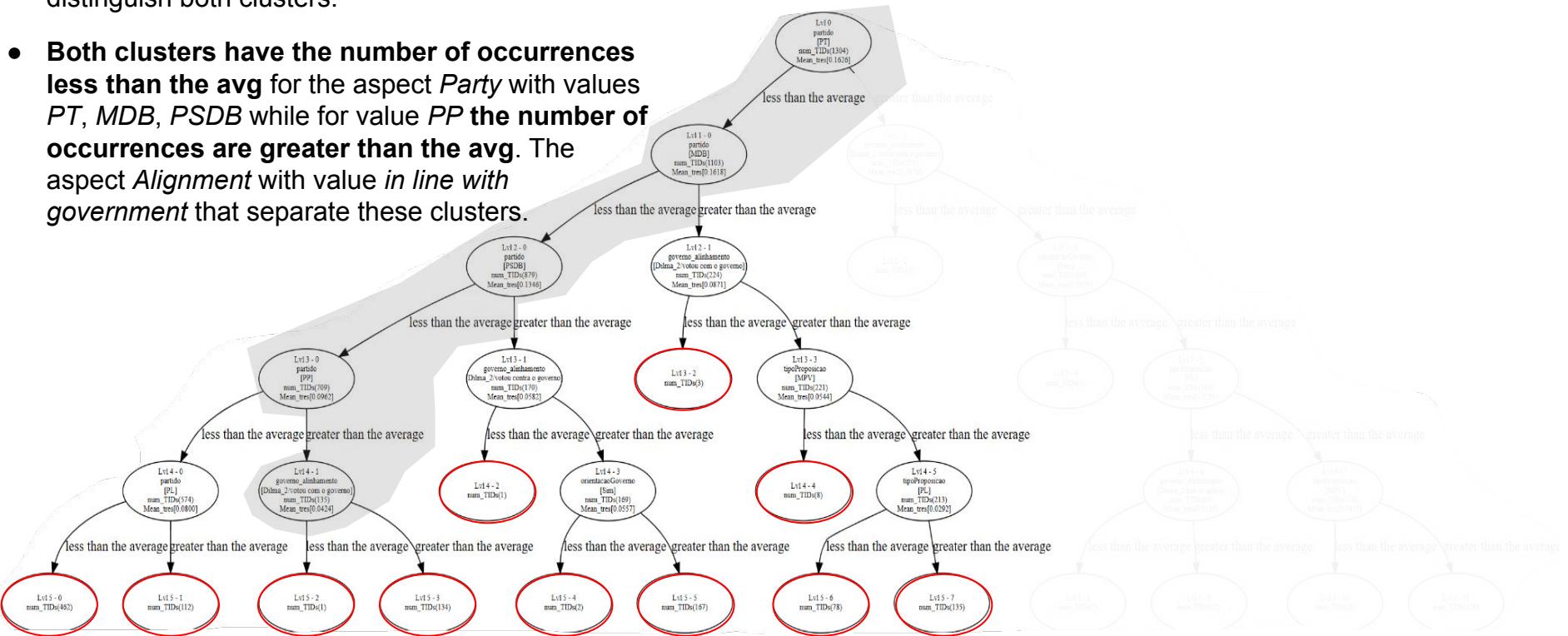
3.1.3. Dilma (2° term)

- All clusters in the left side share the *Party* aspect with values *PT* and *MDB*, changing just the side of the node with *MDB* value.



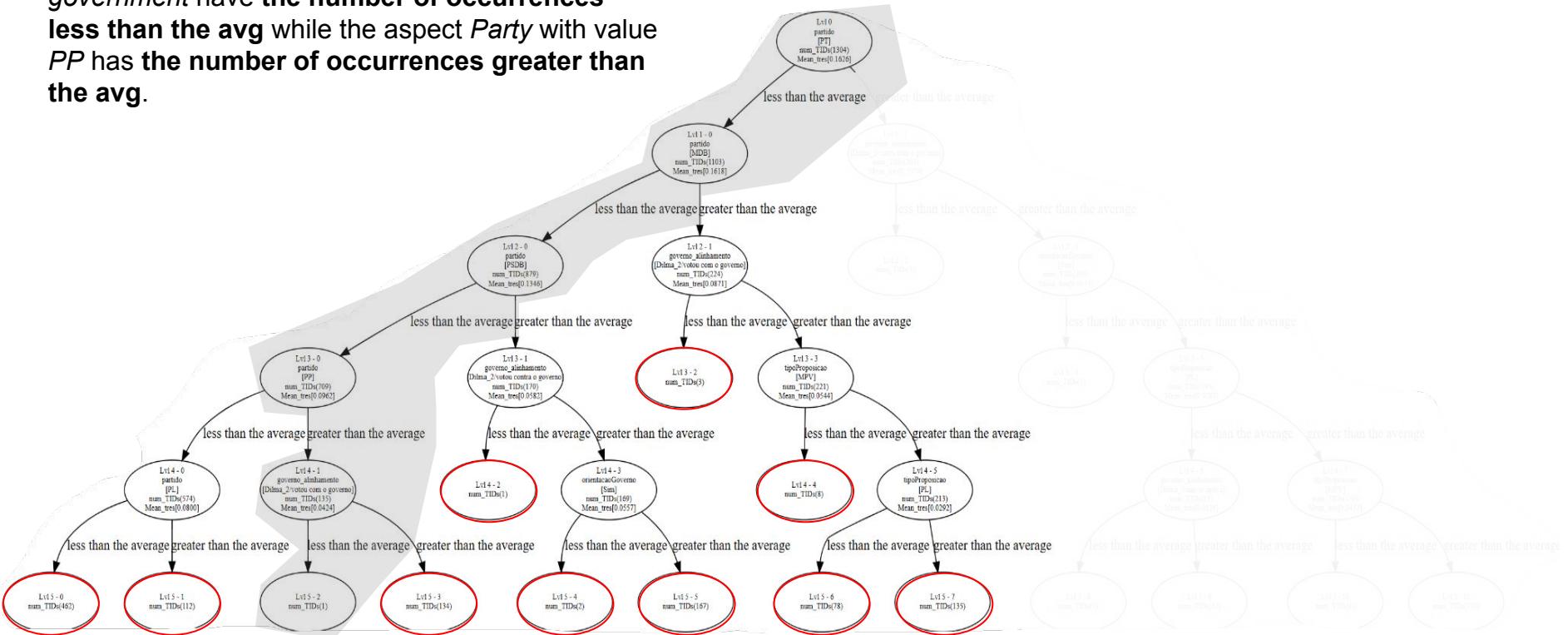
3.1.3. Dilma (2° term)

- Cluster 5-2 and cluster 5-3 share the same aspect path. The threshold in the last aspect that distinguish both clusters.
- Both clusters have the number of occurrences less than the avg for the aspect *Party* with values *PT*, *MDB*, *PSDB* while for value *PP* the number of occurrences are greater than the avg. The aspect *Alignment* with value *in line with government* that separate these clusters.**

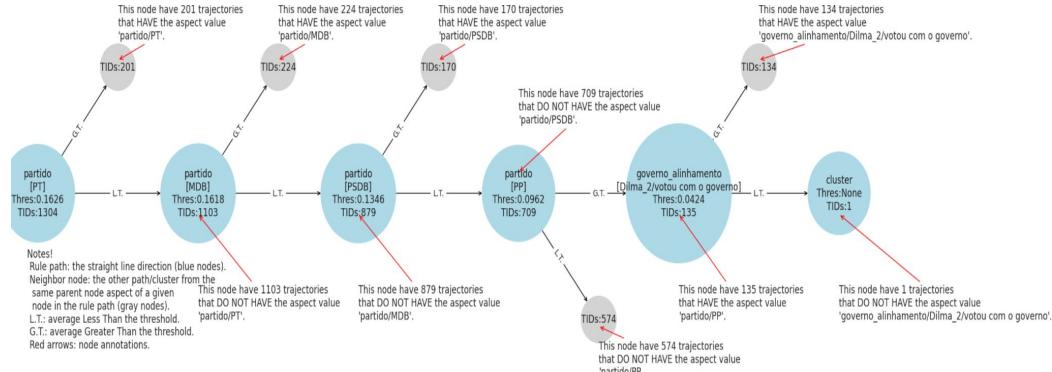


3.1.3. Dilma (2° term)

- In cluster 5-2, the aspect *Party* with values *PT*, *MDB*, *PSDB*, and *Alignment* with value *in line with government* have the number of occurrences less than the avg while the aspect *Party* with value *PP* has the number of occurrences greater than the avg.



3.1.3. Dilma (2° term)



Node: Lvl 5 - 2; Split: max_red; Government: Dilma_2
TIDs: 1; Unique deputies:1; Total votes: 1; avg_len: 1.0 ± nan
from 2016-04-17 to 2016-04-17



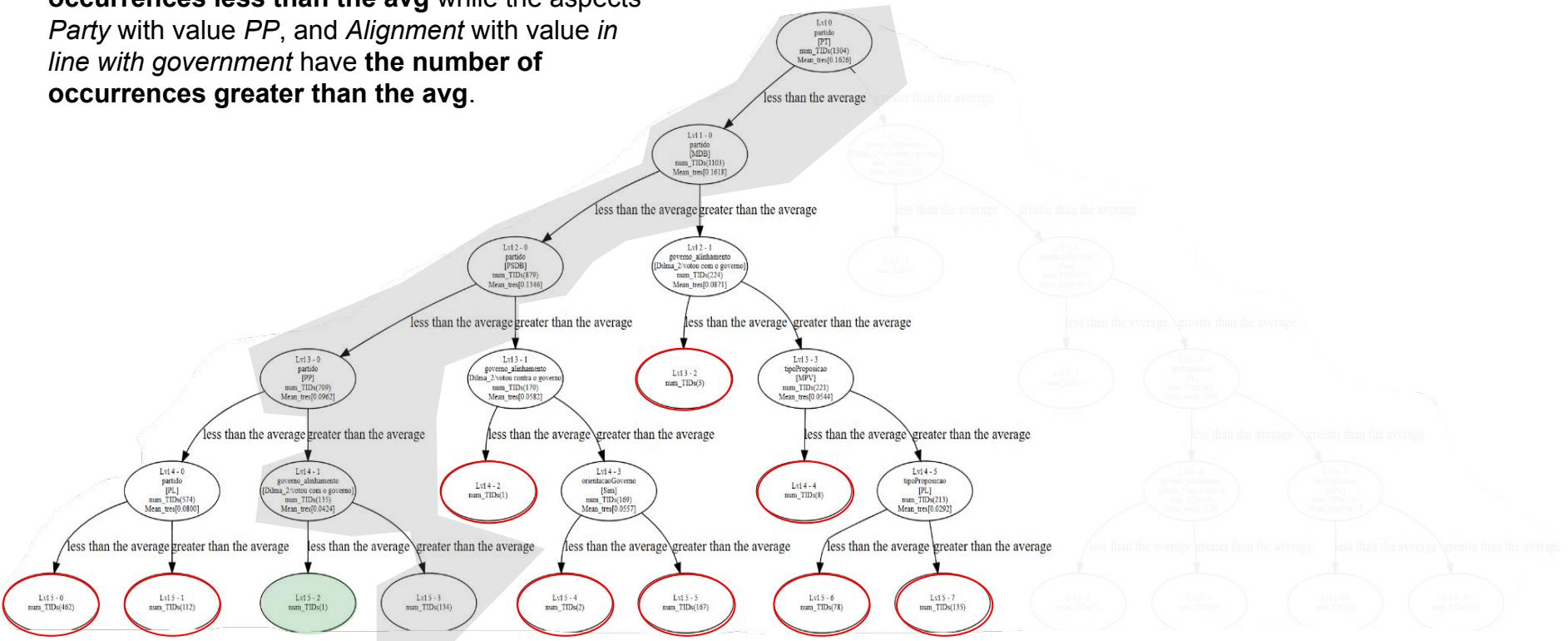
- This is a cluster of one deputy from PP party that voted against the government on DCR proposition.**
- This cluster has short trajectories which means that deputies appear infrequently at parliament.

Opposition

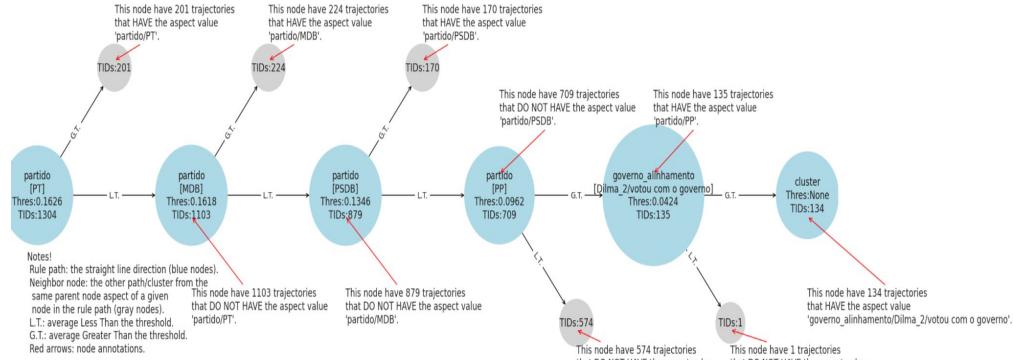
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Franklin	1	1	1	1.69	17/4/16 to 17/4/16

3.1.3. Dilma (2° term)

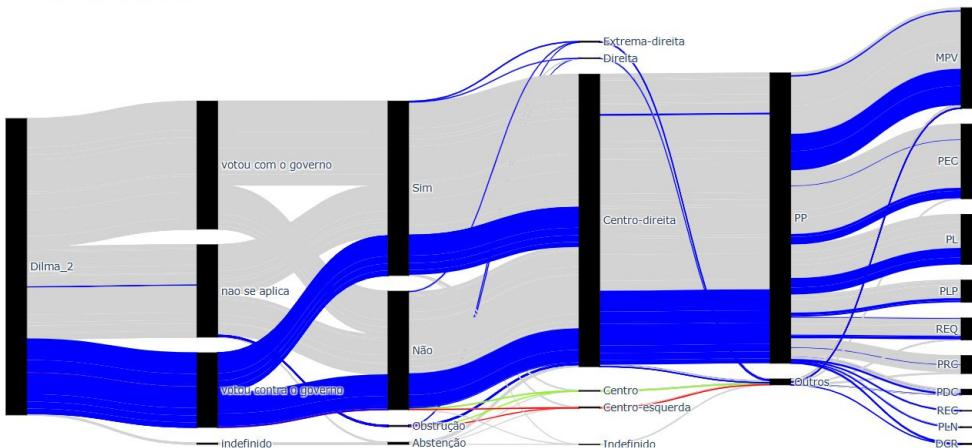
- In cluster 5-3, the aspect *Party* with values *PT*, *MDB*, and *PSDB* have **the number of occurrences less than the avg** while the aspects *Party* with value *PP*, and *Alignment* with value *in line with government* have **the number of occurrences greater than the avg**.



3.1.3. Dilma (2º term)

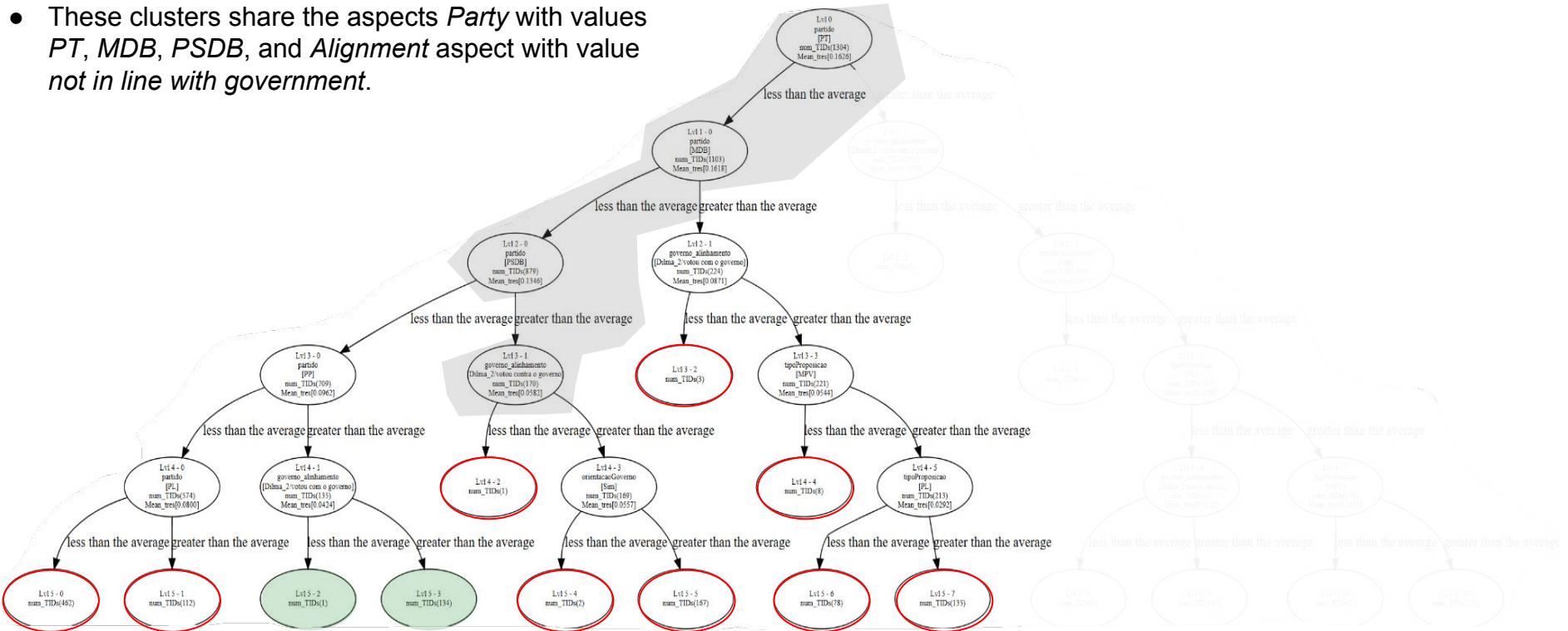


- This is a cluster with the majority of votes from PP party that voted in line with the government (74.38%). Although the support votes, the opposition part focused on the MPV proposition.
- 92.59% (50) of the deputies voted against the government at least once. 48 deputies (85.71%) from PP at this period voted against the government.
- This group has, on avg, 70.89%±22.52% of presence during the period with a coefficient of variance equal to 31.77% (very high dispersion).



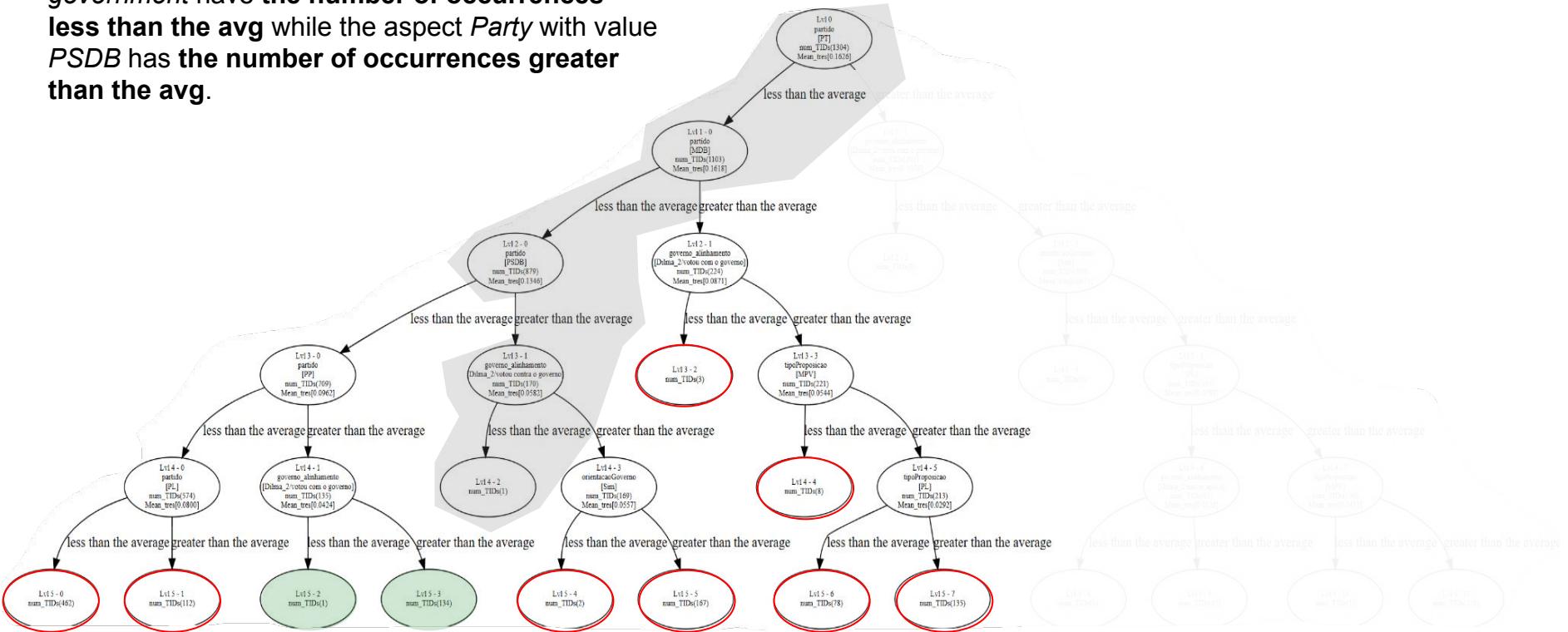
3.1.3. Dilma (2° term)

- Clusters 4-2, 5-4, and 5-5 have some part of its aspect path in common.
- These clusters share the aspects *Party* with values *PT*, *MDB*, *PSDB*, and *Alignment* aspect with value *not in line with government*.

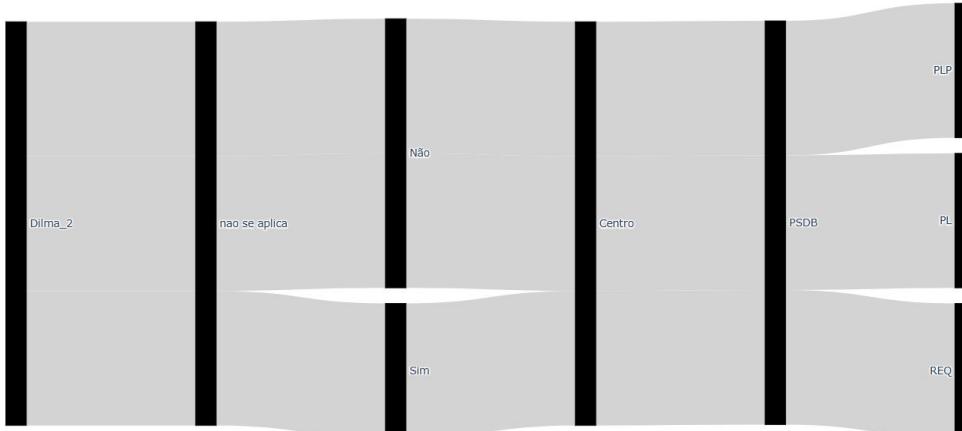
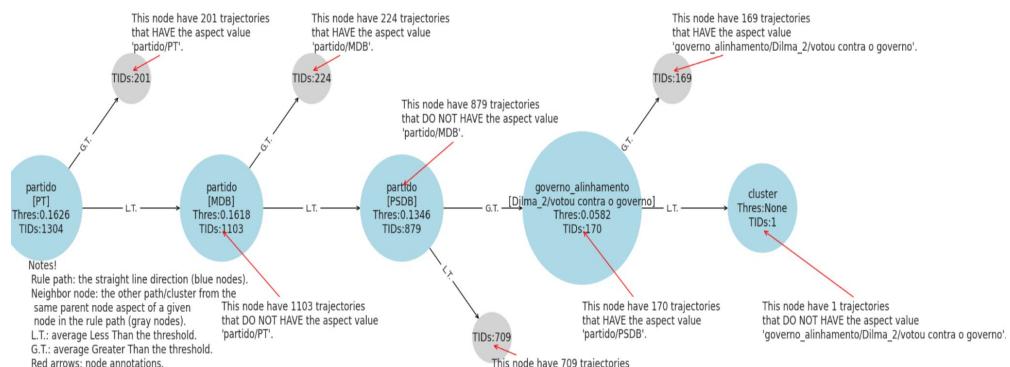


3.1.3. Dilma (2° term)

- In cluster 4-2, the aspects *Party* with values *PT*, *MDB*, and *Alignment* with value *not in line with government* have the **number of occurrences less than the avg** while the aspect *Party* with value *PSDB* has the **number of occurrences greater than the avg**.



3.1.3. Dilma (2° term)



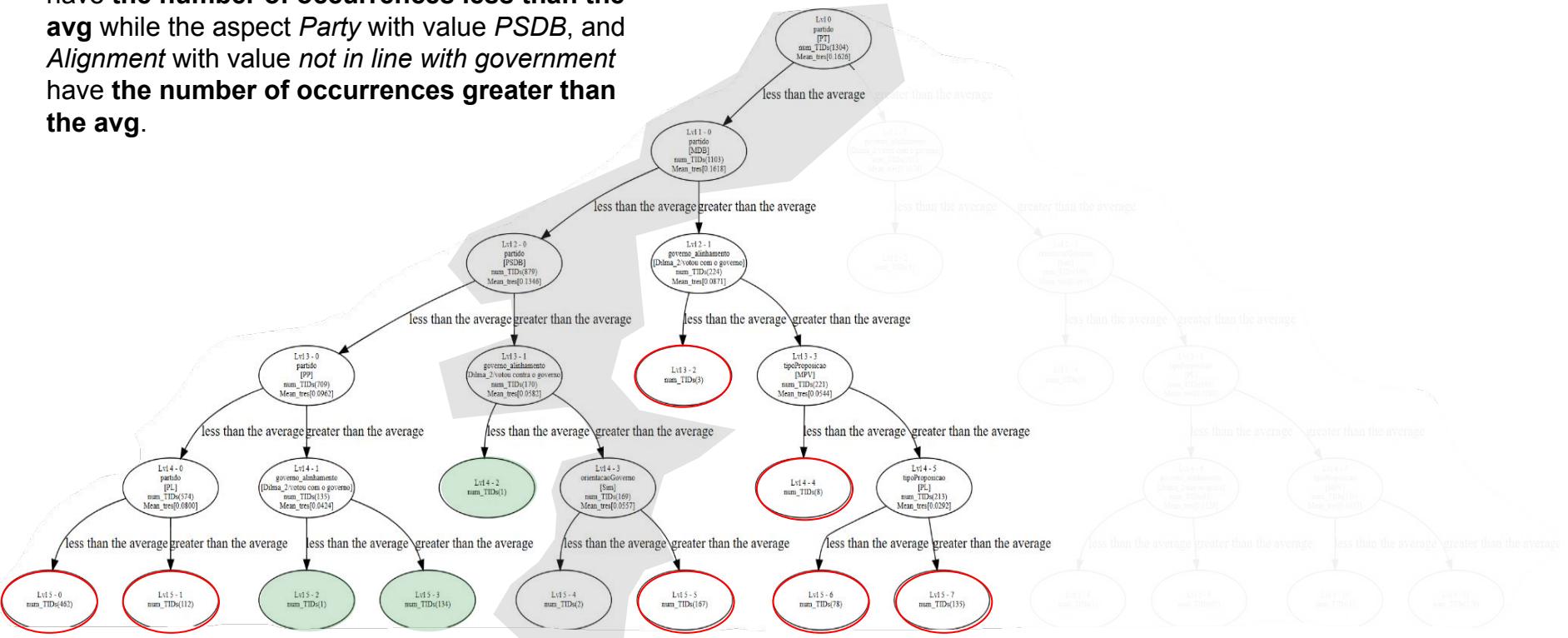
- **This is a cluster with votes of one deputy from PSDB party that voted on proposition without government alignment.**
- This cluster has short trajectories which means that the deputy **appears infrequently at parliament** in the specific period.

Opposition

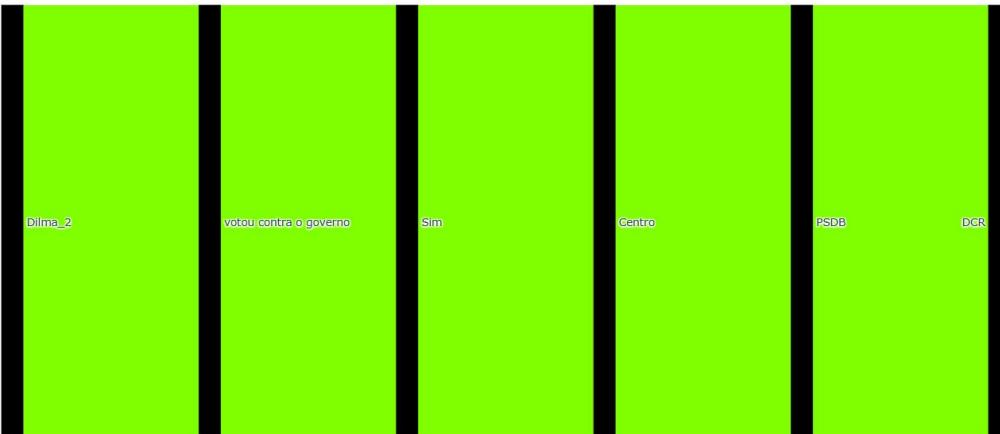
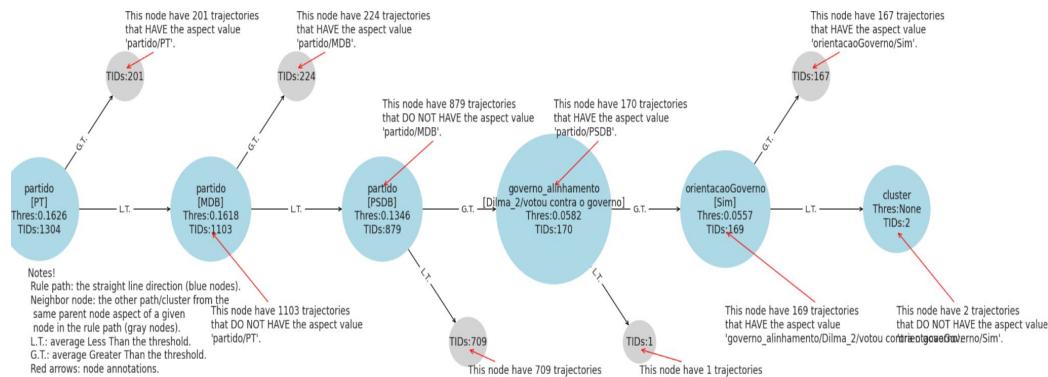
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Floriano Pesaro	3	1	1	2.04	24/2/15 to 26/2/15

3.1.3. Dilma (2° term)

- In cluster 5-4, the aspects *Party* with values *PT*, *MDB*, and *Government Orientation* with value *Yes* have the **number of occurrences less than the avg** while the aspect *Party* with value *PSDB*, and *Alignment* with value *not in line with government* have the **number of occurrences greater than the avg**.



3.1.3. Dilma (2° term)



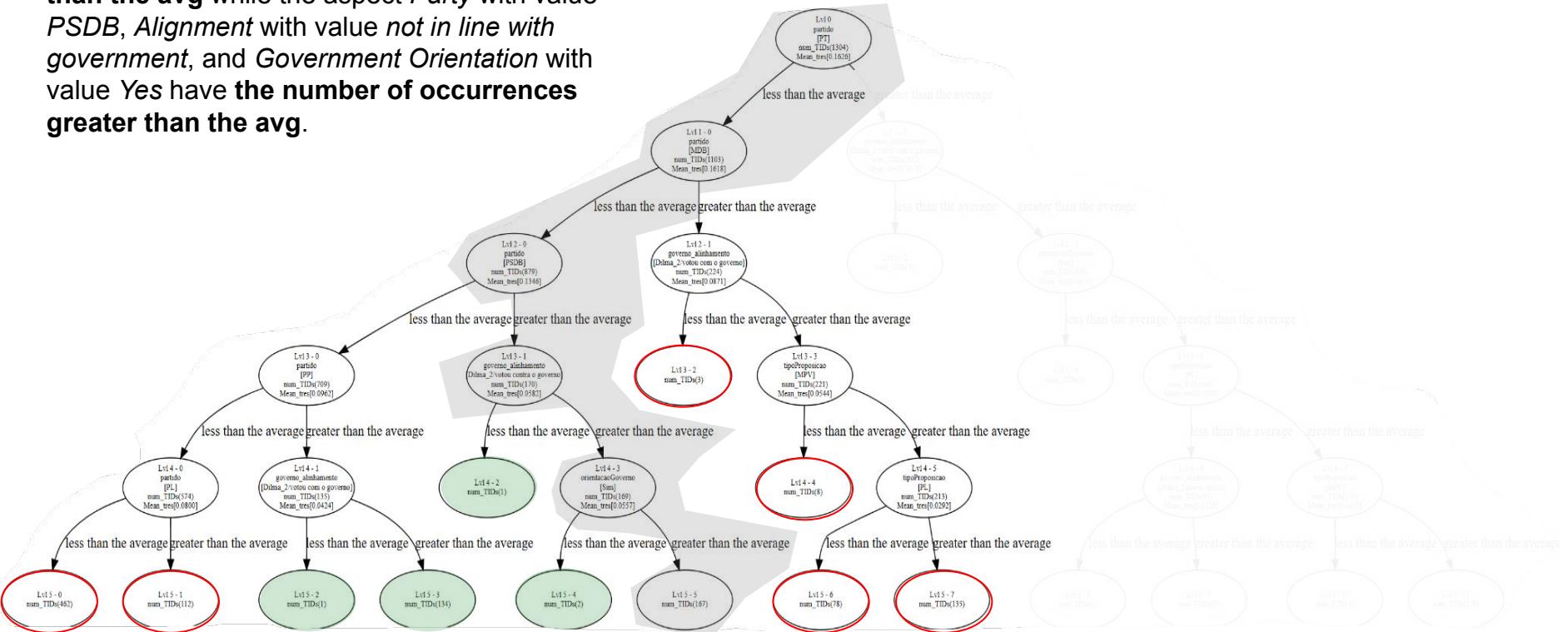
- This is a small cluster with votes of two deputies from PSDB party that voted against the government.
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.

Opposition

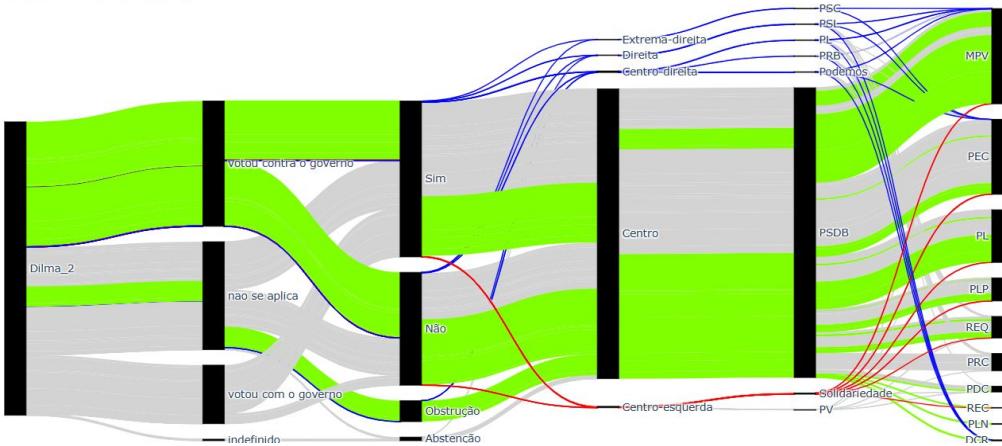
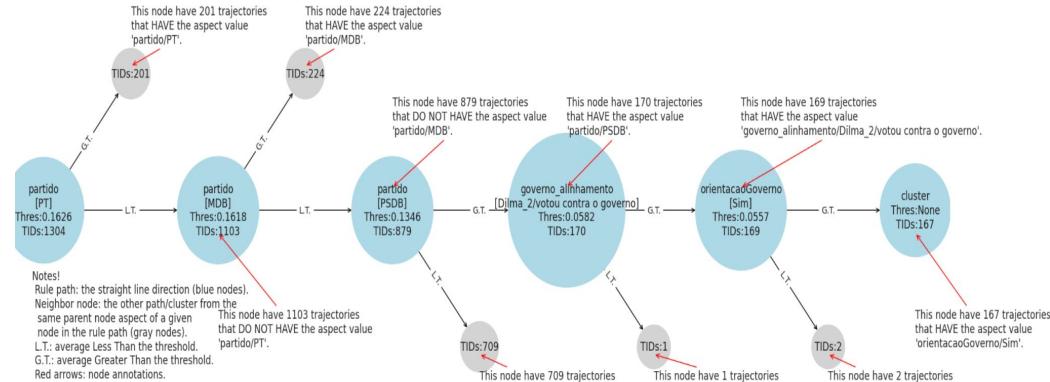
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Floriano Pesaro	3	1	1	1.69	17/4/16 to 17/4/16
Izalci Lucas	1	1	1	1.69	17/4/16 to 17/4/16

3.1.3. Dilma (2° term)

- In cluster 5-5, the aspects *Party* with values *PT*, and *MDB* have **the number of occurrences less than the avg** while the aspect *Party* with value *PSDB*, *Alignment* with value *not in line with government*, and *Government Orientation* with value *Yes* have **the number of occurrences greater than the avg.**



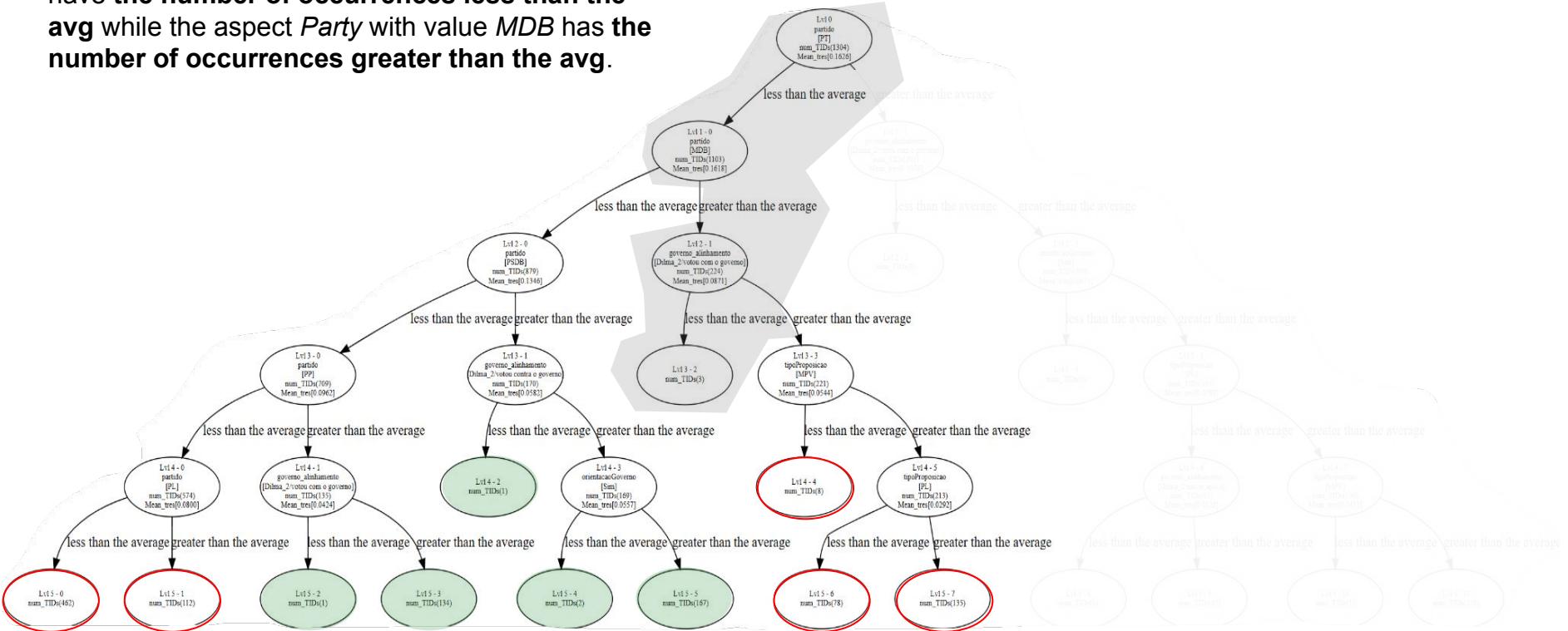
3.1.3. Dilma (2° term)



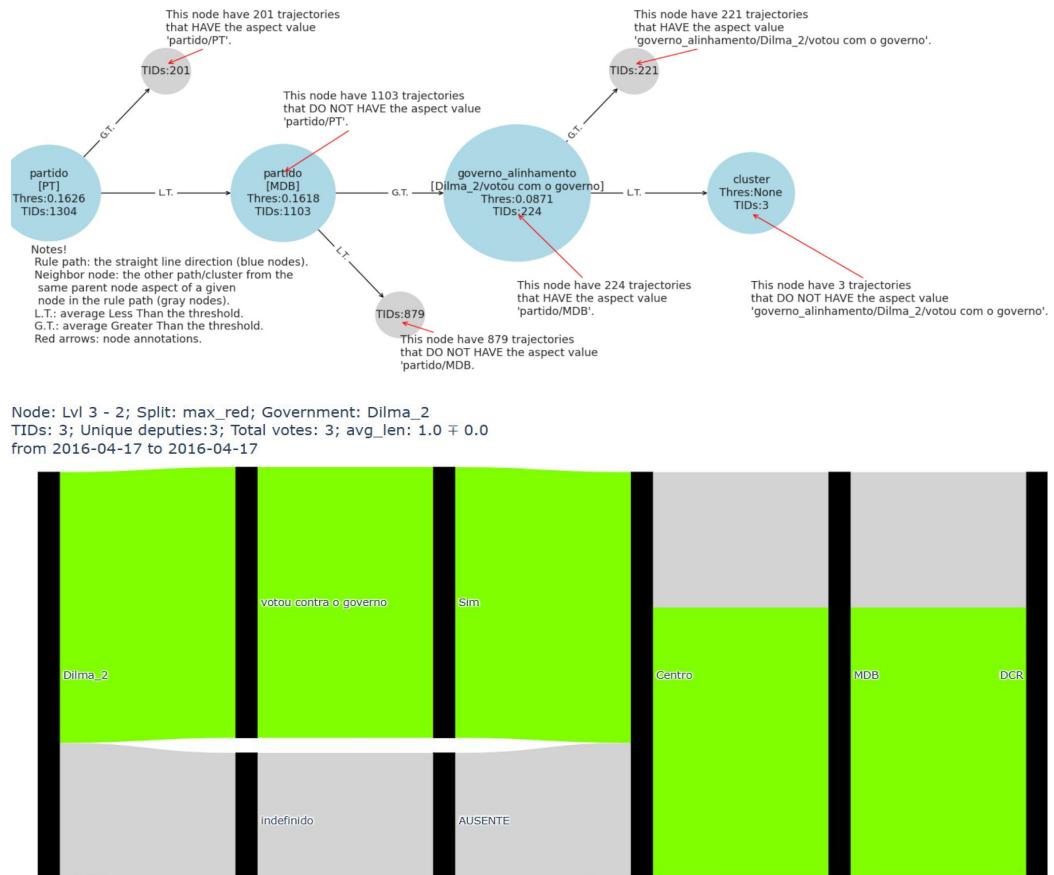
- This is a cluster with the majority of votes from PSDB party that voted in line with the government (50.13%). Although the support votes, the opposition was hard focusing on the MPV and PL propositions.**
- All deputies voted against the government at least once. 54 deputies (88.52%) from PSDB at this period voted against the government.**
- This group has, on avg, $77.7\pm19.14\%$ of presence during the period with a coefficient of variance equal to **24.63%** (high dispersion).**

3.1.3. Dilma (2° term)

- In cluster 3-2, the aspects *Party* with values *PT*, and *Alignment* with value *in line with government* have the number of occurrences less than the avg while the aspect *Party* with value *MDB* has the number of occurrences greater than the avg.



3.1.3. Dilma (2° term)



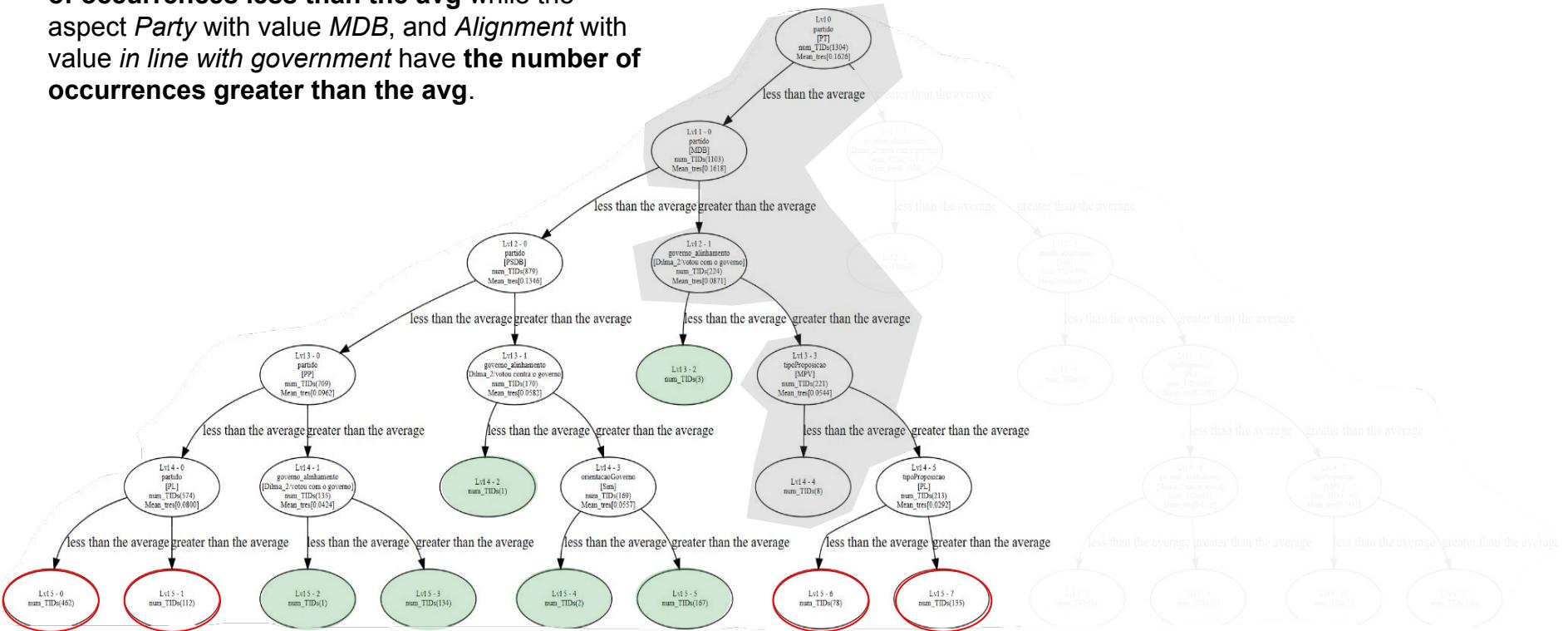
- This is a small cluster with votes of three deputies from MDB party that mainly voted against the government with focus on DCR proposition.
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.

Opposition

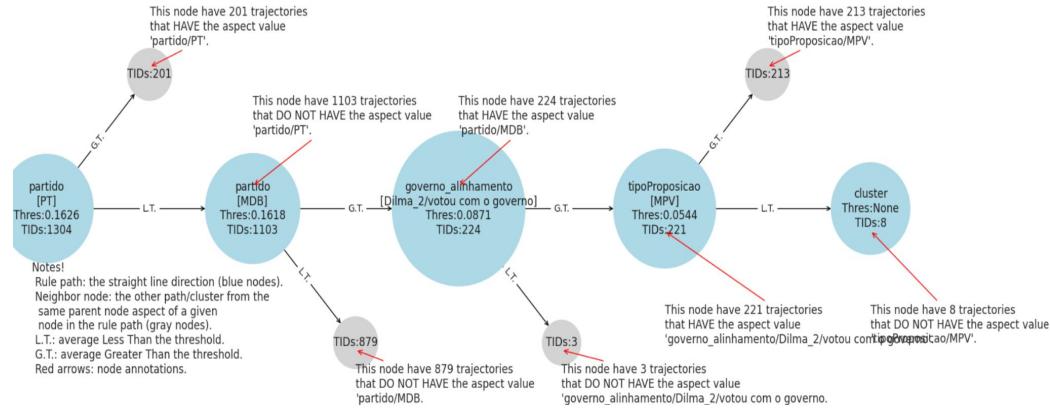
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Aníbal Gomes	3	1	1	1.69	17/4/16 to 17/4/16
Eduardo Cunha	1	1	1	1.69	17/4/16 to 17/4/16
Sergio Zveiter	2	1	1	1.69	17/4/16 to 17/4/16

3.1.3. Dilma (2° term)

- In cluster 4-4, the aspects *Party* with values *PT*, and *Proposition* with value *MPV* have **the number of occurrences less than the avg** while the aspect *Party* with value *MDB*, and *Alignment* with value *in line with government* have **the number of occurrences greater than the avg**.



3.1.3. Dilma (2° term)

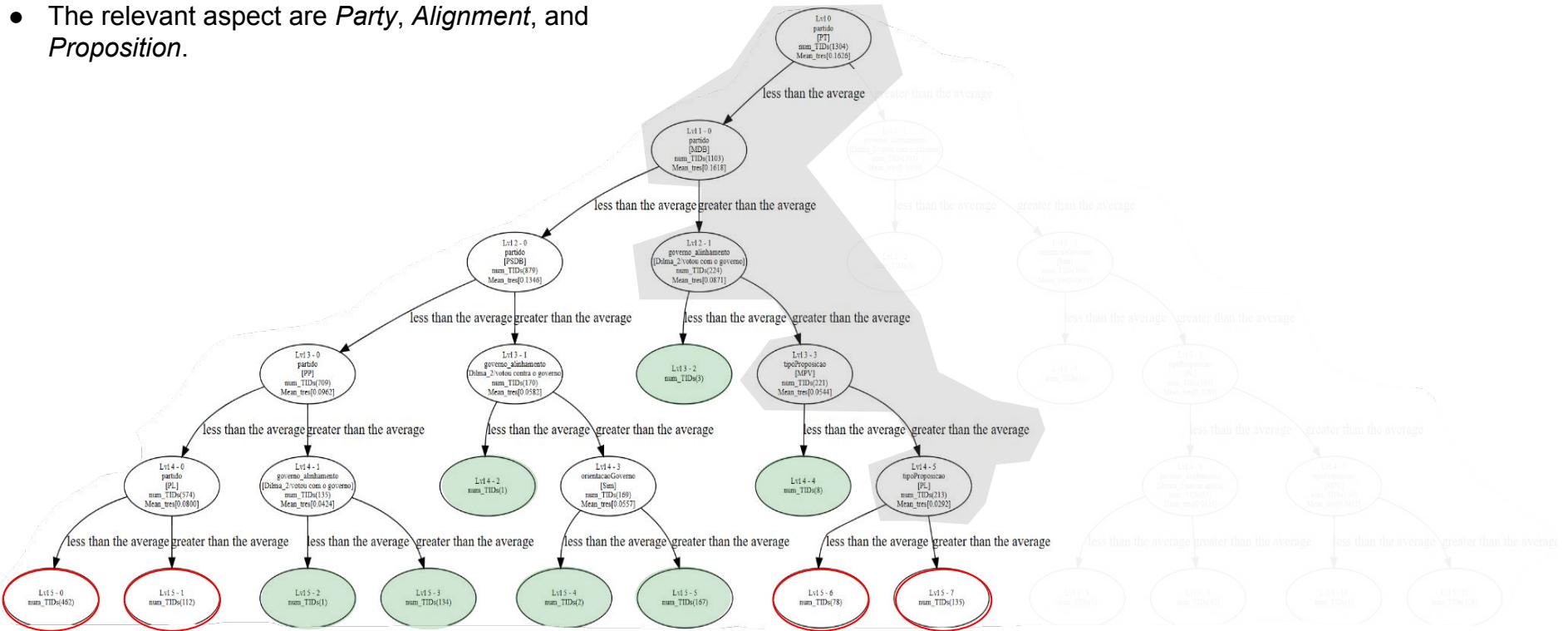


- This is a small cluster with votes of deputies from MDB party that mainly voted in line with the government (81.25%), but also made opposition with focus on PL proposition.**
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.**
- This group has, on avg, $5.03\% \pm 4.66\%$ of presence during the period with a coefficient of variance equal to **92.64%** (very high dispersion).**

Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Giovani Feltes	1	1	4	2.72	3/2/15 to 11/2/15
João Marcelo	1	1	19	12.93	3/2/15 to 12/3/15
Marco Cabral	3	2	5	3.4	3/2/15 to 10/2/15
Pedro Paulo	2	1	6	4.08	3/2/15 to 11/2/15
Wilson Beserra	2	1	2	1.67	15/12/15 to 15/12/15

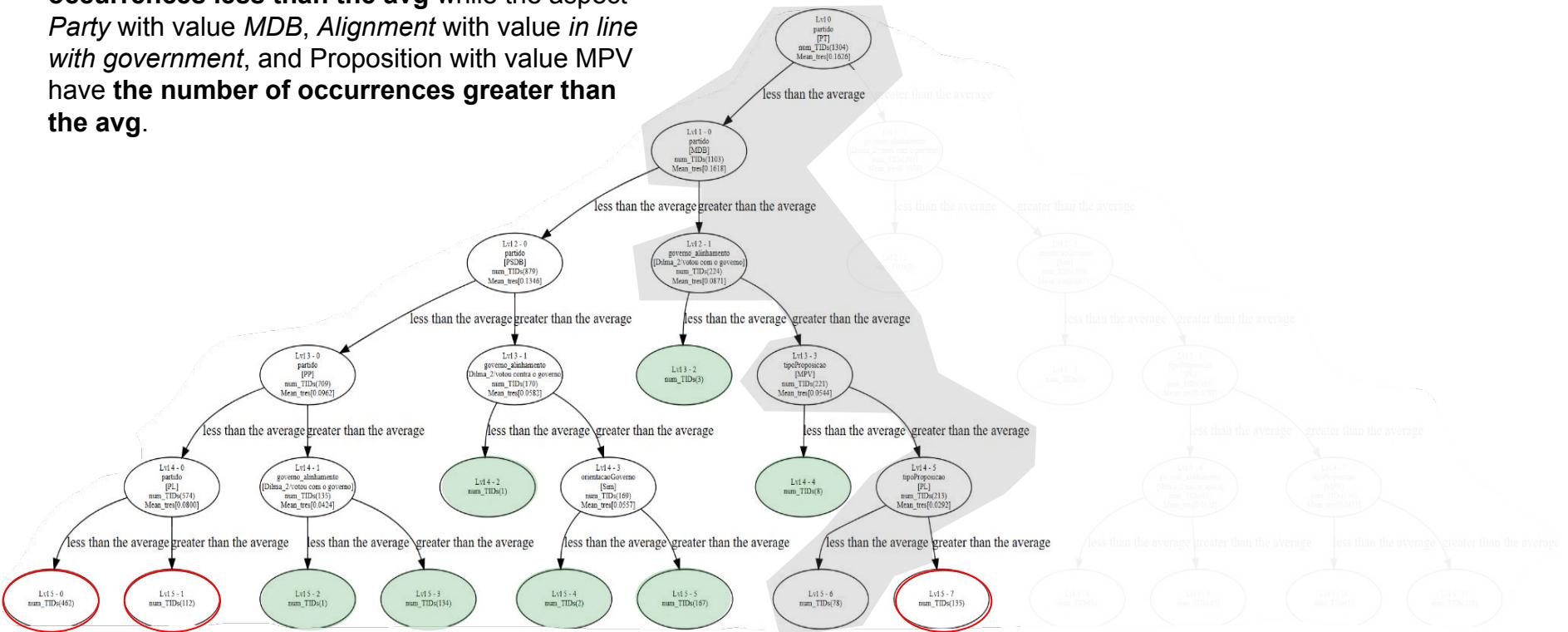
3.1.3. Dilma (2° term)

- Clusters 5-6 and 5-7 share the same aspect path where the last aspect distinguish them.
- The relevant aspect are *Party*, *Alignment*, and *Proposition*.

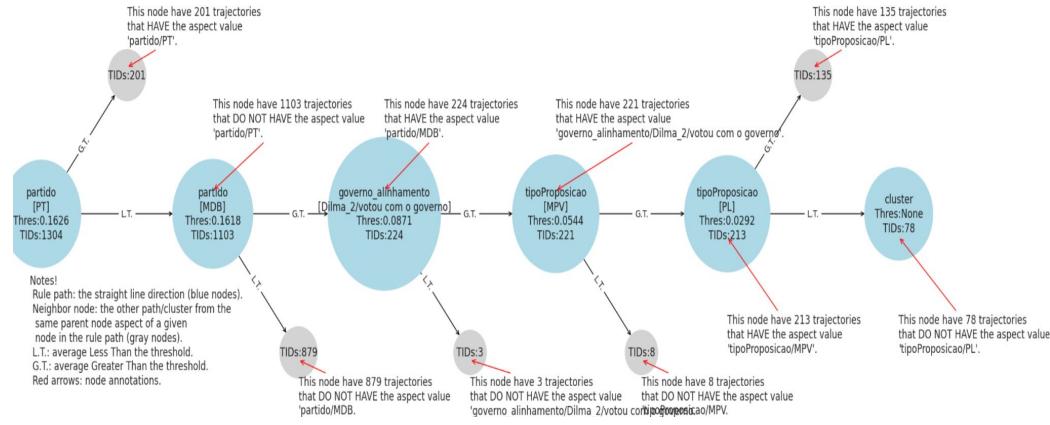


3.1.3. Dilma (2° term)

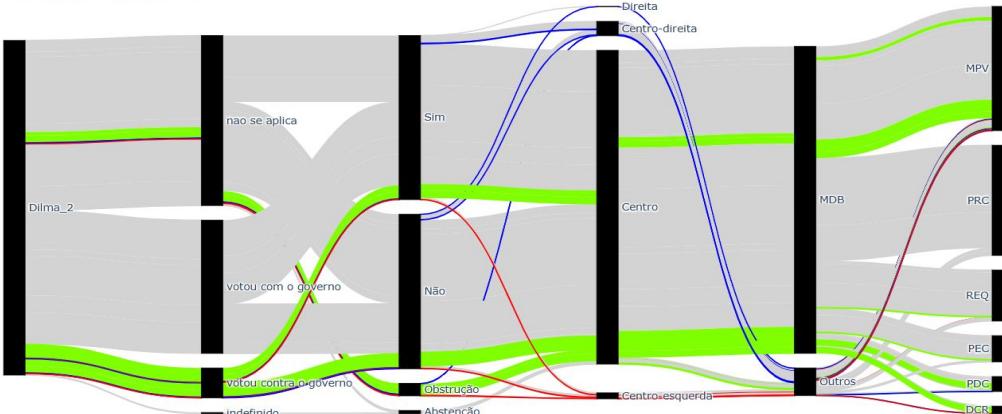
- In cluster 5-6, the aspects *Party* with value *PT*, and *Proposition* with value *PL* have **the number of occurrences less than the avg** while the aspect *Party* with value *MDB*, *Alignment* with value *in line with government*, and Proposition with value *MPV* have **the number of occurrences greater than the avg**.



3.1.3. Dilma (2º term)



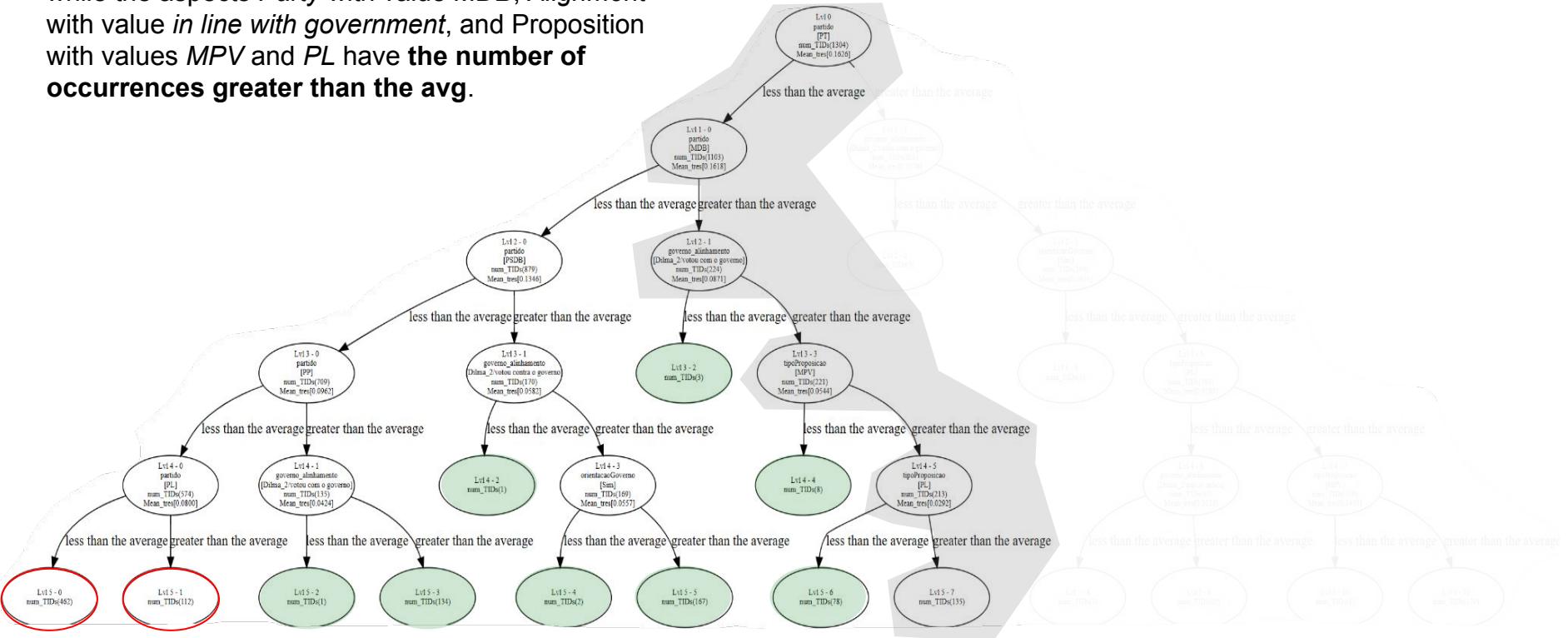
Node: Lvl 5 - 6; Split: max_red; Government: Dilma_2
TIDs: 78; Unique deputies: 78; Total votes: 2938; avg_len: 37.67 ± 14.17
from 2016-02-03 to 2016-05-04



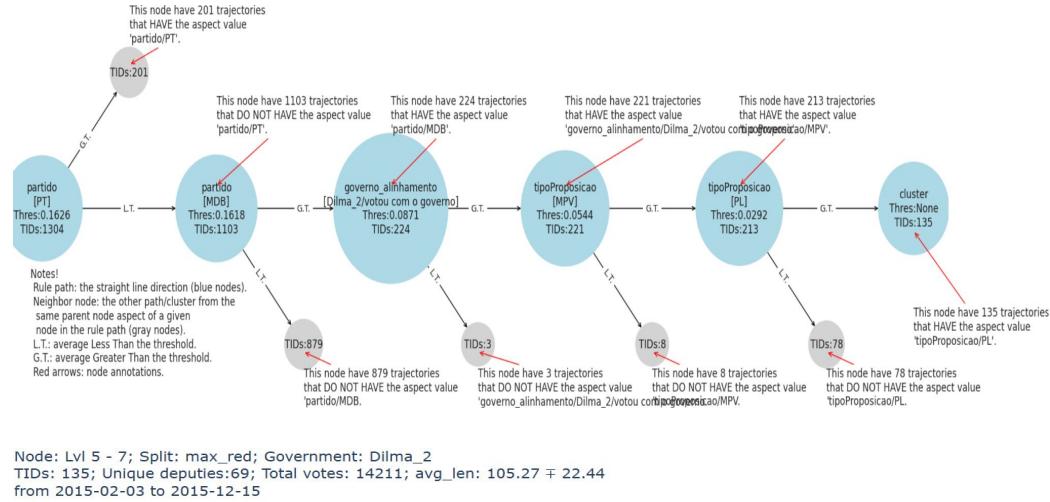
- This is a cluster with the majority of votes from MDB party that voted in line with the government (87.31%) and did not participate on PL proposition, instead focused on MPV.
- 94.87% (74) of deputies voted against the government at least once. 69 deputies (78.41%) from MDB at this period voted against the government.
- All votes occurred on the 1º semester of 2016.
- This group has, on avg, **63.84%±24.02%** of presence during the period with a coefficient of variance equal to **37.63%** (very high dispersion).

3.1.3. Dilma (2° term)

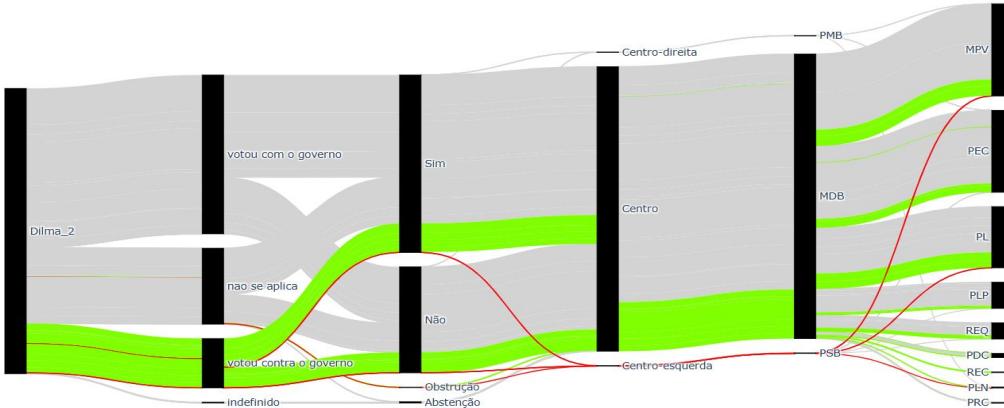
- In cluster 5-7, the aspect *Party* with value *PT* has **the number of occurrences less than the avg** while the aspects *Party* with value *MDB*, *Alignment* with value *in line with government*, and *Proposition* with values *MPV* and *PL* have **the number of occurrences greater than the avg**.



3.1.3. Dilma (2º term)

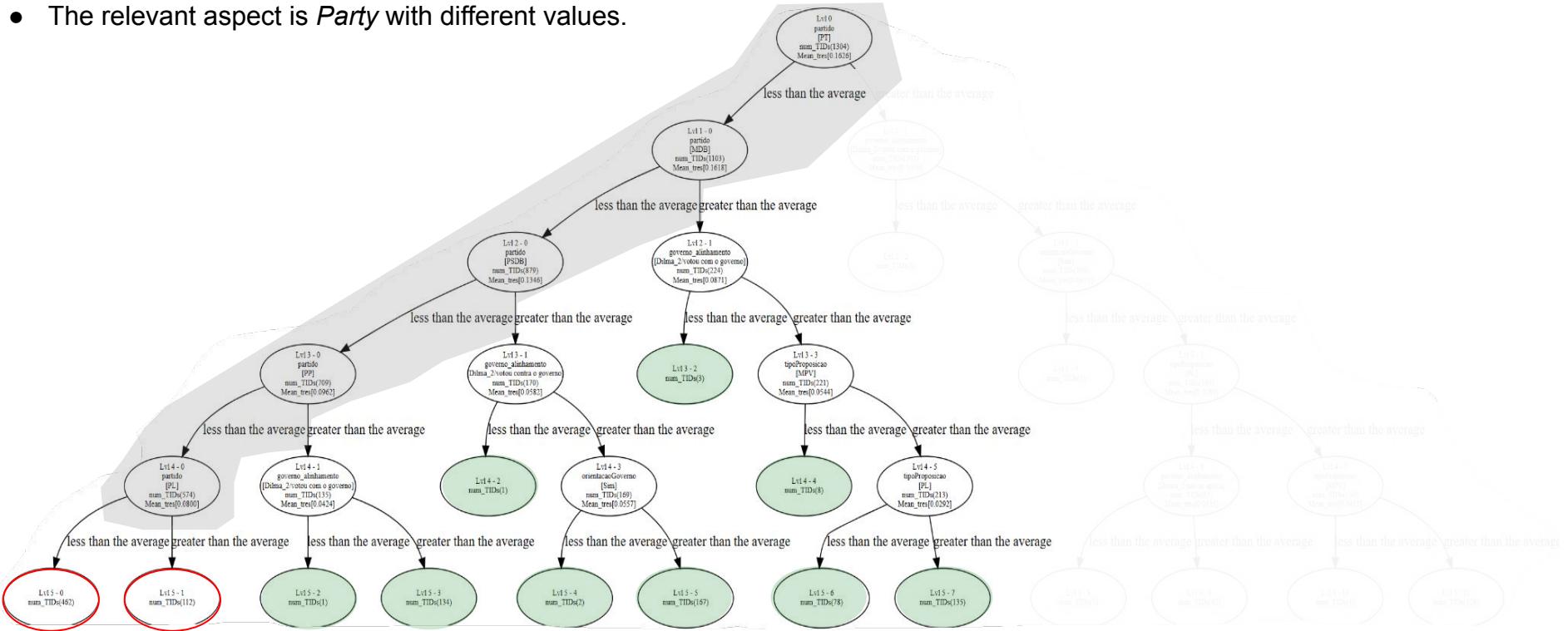


- This is a cluster with the majority of votes from MDB party that voted in line with the government (82.57%) and focused on MPV and PL propositions.
- 98.55% (68) of deputies voted against the government at least once. 66 deputies (75%) from MDB at this period voted against the government.
- All votes occurred in 2015.
- This group has, on avg, **78.95%±14.7%** of presence during the period with a coefficient of variance equal to **18.62%** (medium dispersion).



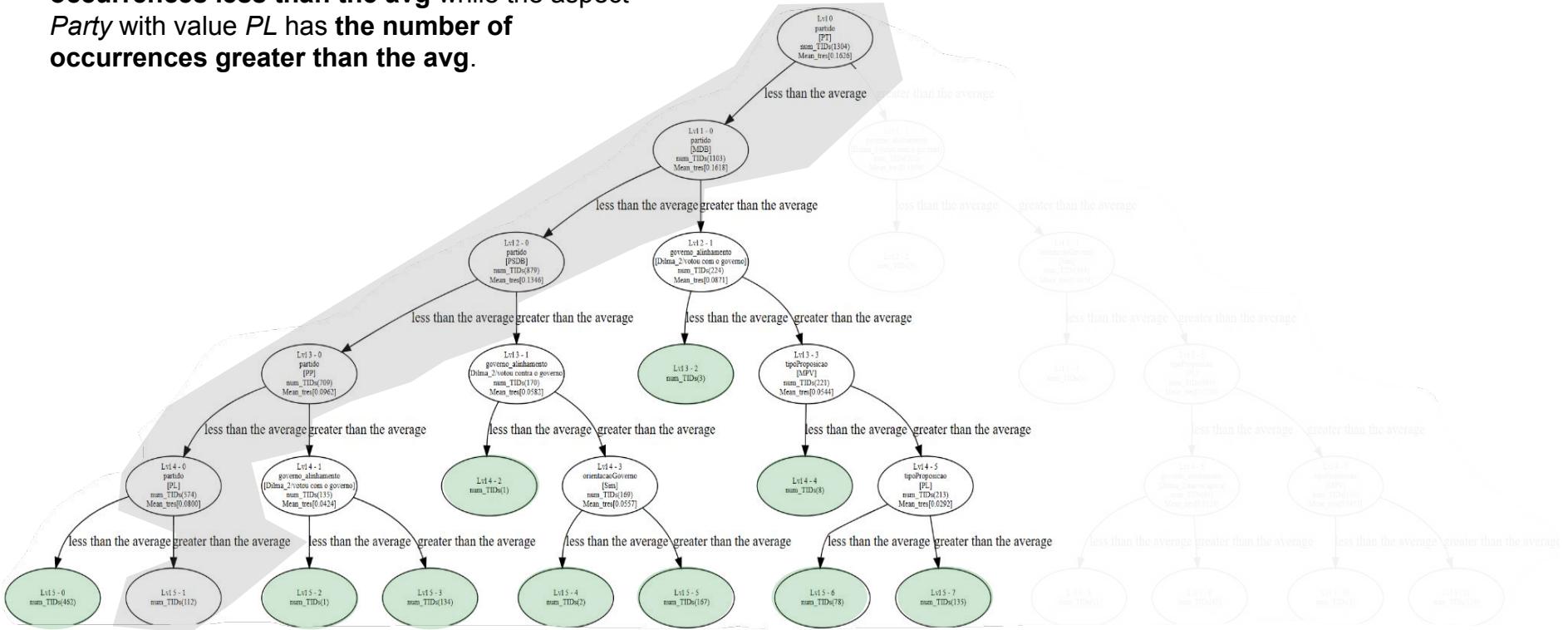
3.1.3. Dilma (2° term)

- Clusters 5-0 and 5-1 share the same aspect path where the last aspect distinguish them.
- The relevant aspect is *Party* with different values.

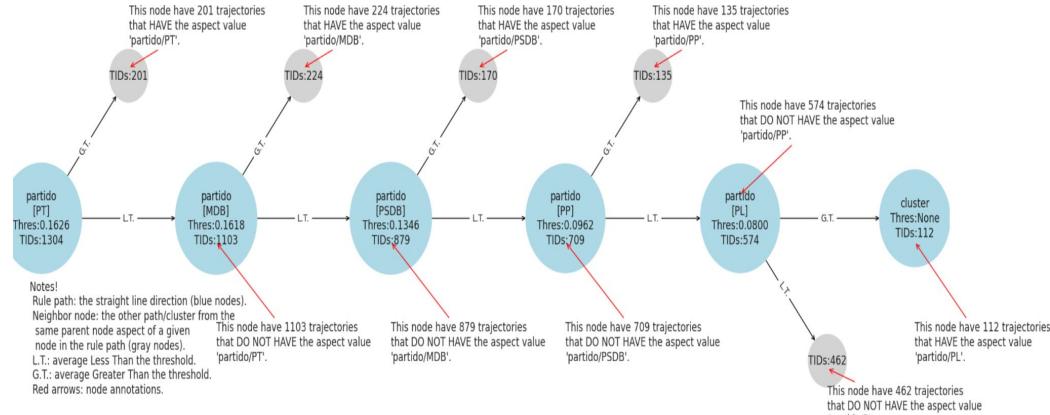


3.1.3. Dilma (2° term)

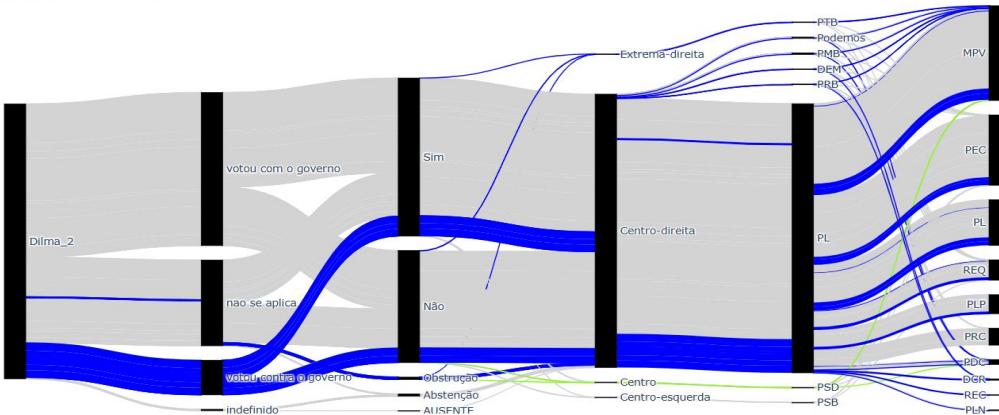
- In cluster 5-0, the aspect *Party* with values *PT*, *MDB*, *PSDB*, and *PP* have **the number of occurrences less than the avg** while the aspect *Party* with value *PL* has **the number of occurrences greater than the avg**.



3.1.3. Dilma (2° term)



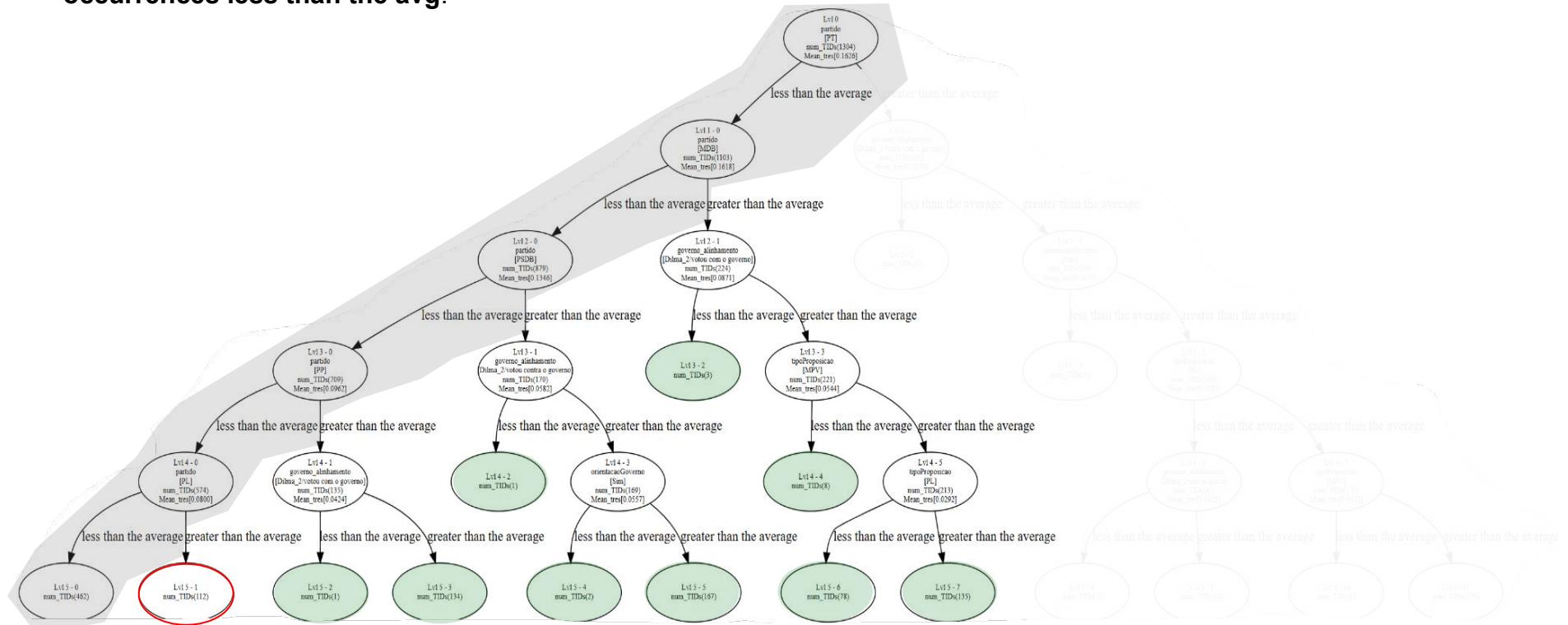
Node: Lvl 5 - 1; Split: max_red; Government: Dilma_2
TIDs: 112; Unique deputies: 44; Total votes: 8546; avg_len: 76.3 ± 38.55
from 2015-02-03 to 2016-05-04



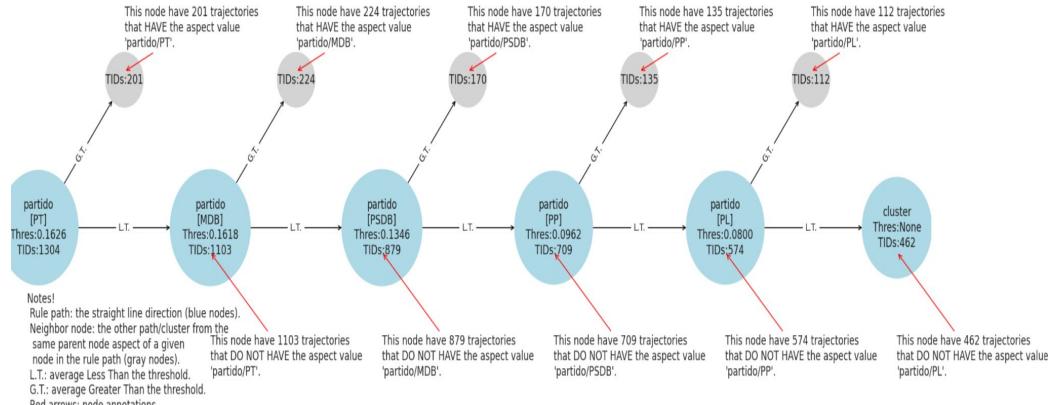
- This is a cluster with the majority of votes from deputies of PL party that supported the government (73.94%). Moreover, the PL also represents the majority of the opposition votes.**
- 95.45% (42) of deputies voted against the government at least once. 39 deputies that are from PL party voted against the government which represents 84.78% of the PL elected deputies.**
- This group has, on avg, 70.72%±22.37% of presence during the period with a coefficient of variance equal to 31.63% (very high dispersion).**

3.1.3. Dilma (2° term)

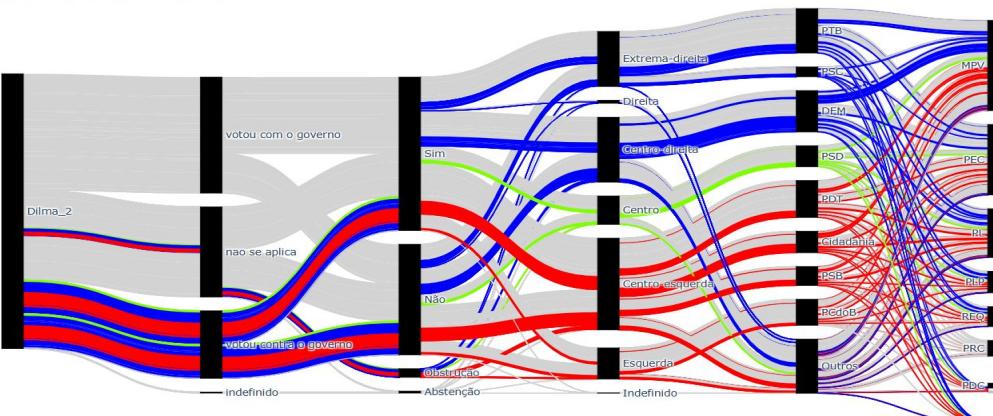
- In cluster 5-0, the aspect *Party* with values *PT*, *MDB*, *PSDB*, *PP*, and *PL* have **the number of occurrences less than the avg.**



3.1.3. Dilma (2° term)

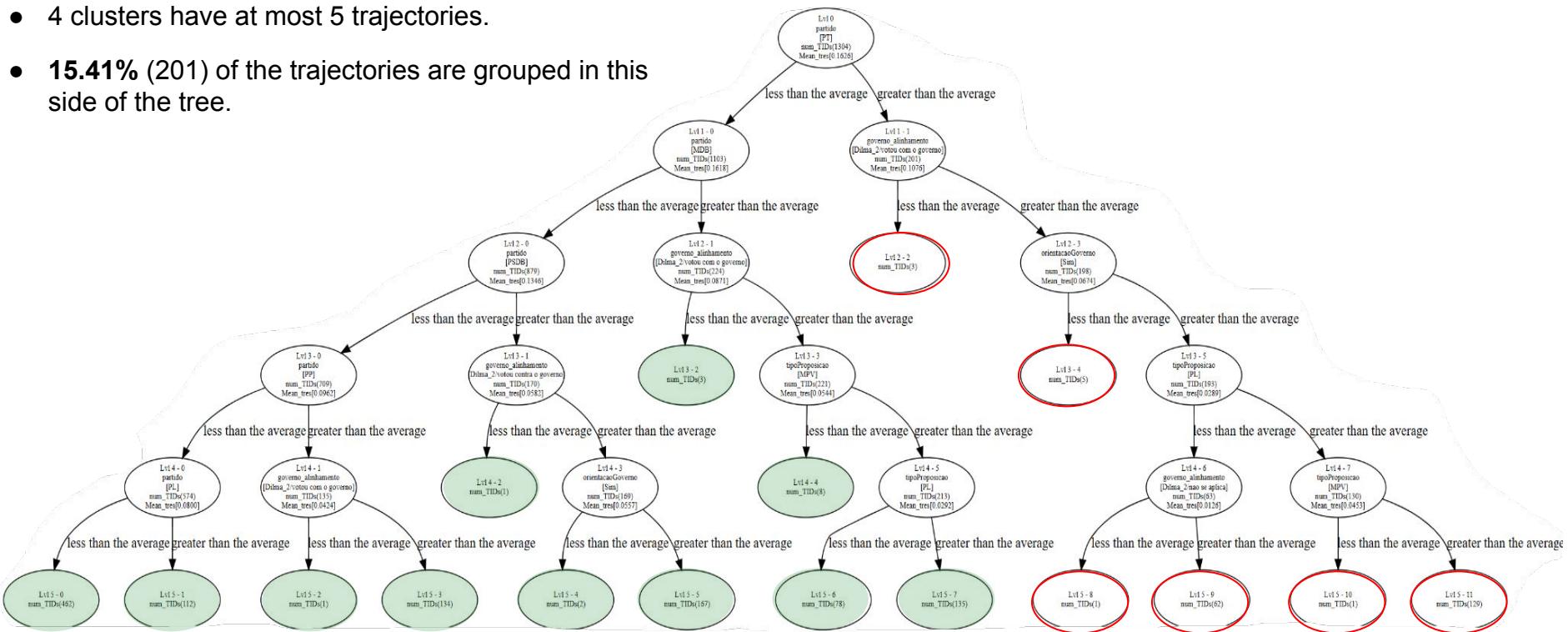


- This is a cluster with the majority of votes in line with the government (72.24%). Moreover, the Center-left and Center-right parties represent 69.21% of the opposition votes.
- 96.2% (228) of deputies voted against the government at least once.
- This group has, on avg, **72.97%±23.11%** of presence during the period with a coefficient of variance equal to **31.67%** (very high dispersion).



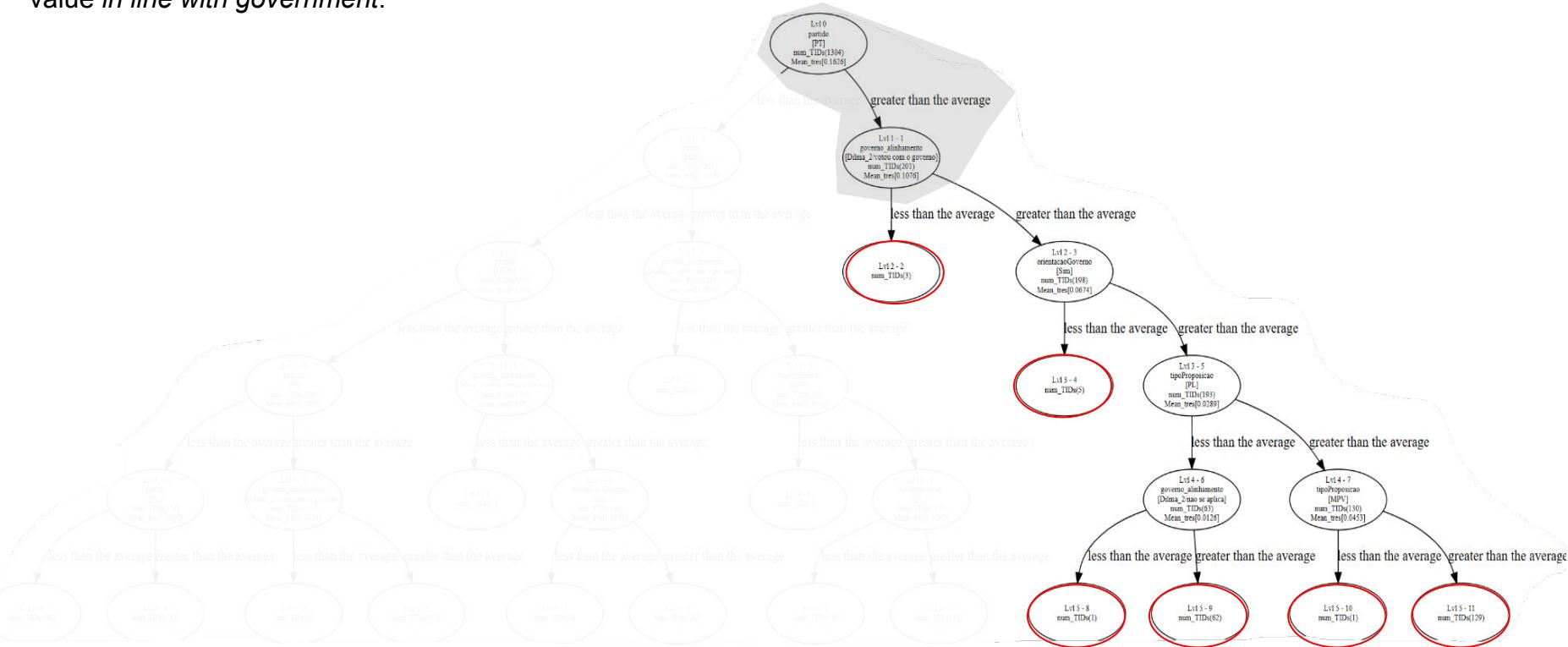
3.1.3. Dilma (2° term)

- There are 6 clusters on the right side of the root node.
- 4 clusters have at most 5 trajectories.
- **15.41% (201)** of the trajectories are grouped in this side of the tree.



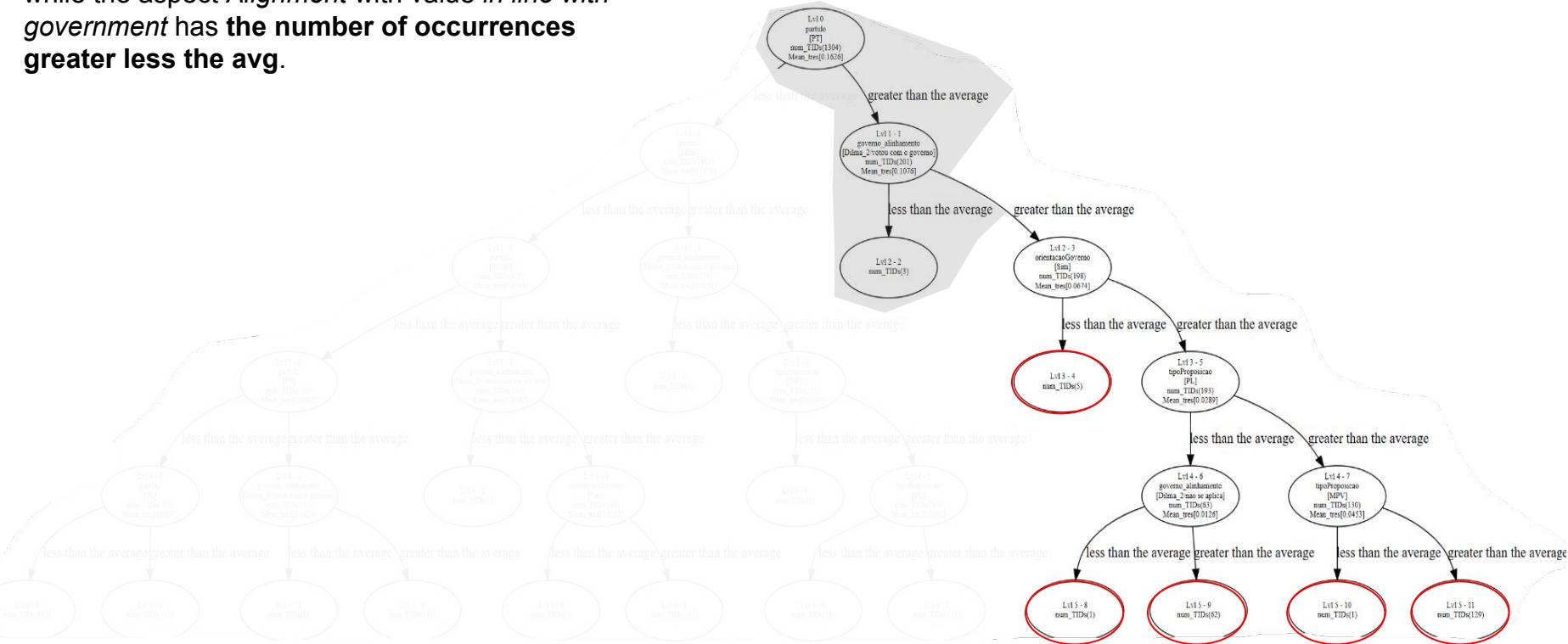
3.1.3. Dilma (2° term)

- There are 2 aspects that are in common to all clusters, *Party* with value *PT* and *Alignment* with value *in line with government*.



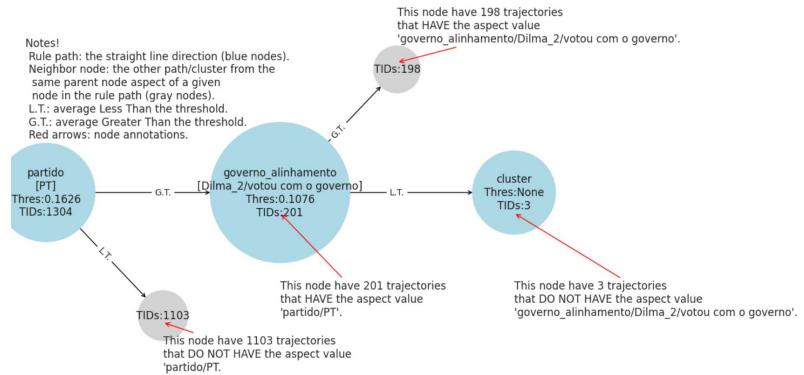
3.1.3. Dilma (2° term)

- In cluster 2-2, the aspect *Party* with value *PT* have **the number of occurrences greater than the avg** while the aspect *Alignment* with value *in line with government* has **the number of occurrences greater less the avg.**



3.1.3. Dilma (2° term)

Notes!
 Rule path: the straight line direction (blue nodes).
 Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).
 L.T.: average Less Than the threshold.
 G.T.: average Greater Than the threshold.
 Red arrows: node annotations.



Node: Lvl 2 - 2; Split: max_red; Government: Dilma_2
 TIDs: 3; Unique deputies:3; Total votes: 7; avg_len: 2.33 ± 1.53
 from 2015-02-03 to 2016-05-04

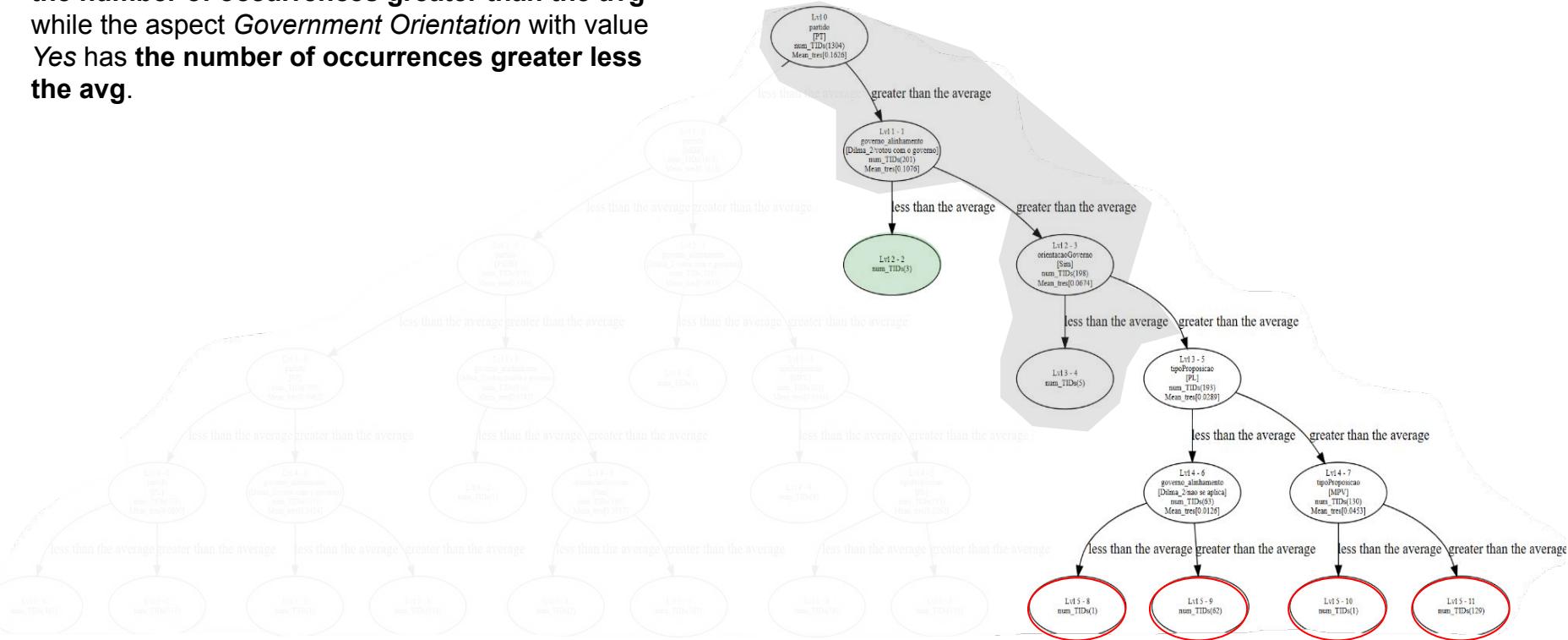


- This is a small cluster with votes of deputies from PT party that mainly voted in line with the government (57.14), but also made opposition by voting to obstruct some PEC propositions.
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.
- This group has, on avg, **2.26%±1.41%** of presence during the period with a coefficient of variance equal to **62.39%** (very high dispersion).

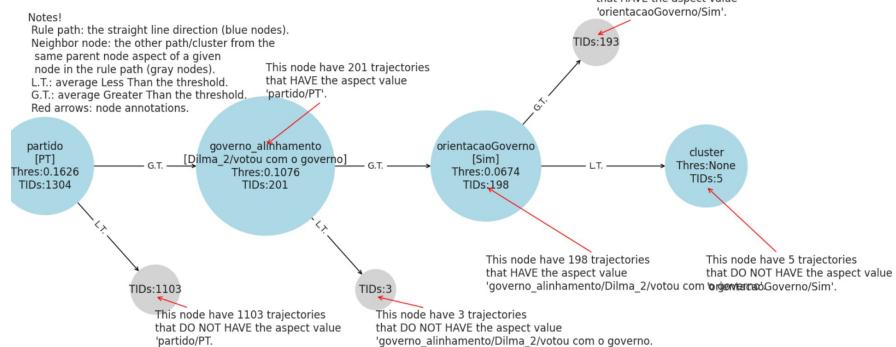
Opposition					
Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
José Airton	1	1	1	0.68	3/2/15 to 3/2/15
Nilmário Miranda	2	1	4	2.72	24/2/15 to 4/3/15

3.1.3. Dilma (2° term)

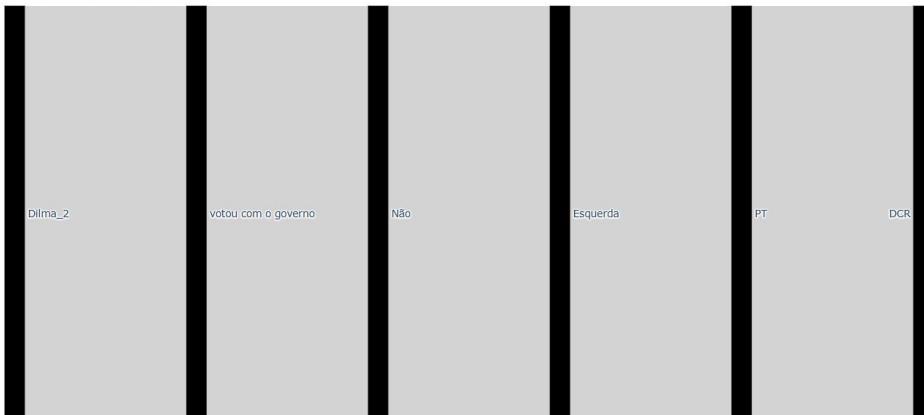
- In cluster 3-4, the aspects *Party* with value *PT*, and *Alignment* with value *in line with government* have **the number of occurrences greater than the avg** while the aspect *Government Orientation* with value *Yes* has **the number of occurrences greater less the avg**.



3.1.3. Dilma (2° term)



Node: Lvl 3 - 4; Split: max_red; Government: Dilma_2
 TIDs: 5; Unique deputies: 5; Total votes: 5; avg_len: 1.0 ± 0.0
 from 2016-04-17 to 2016-04-17

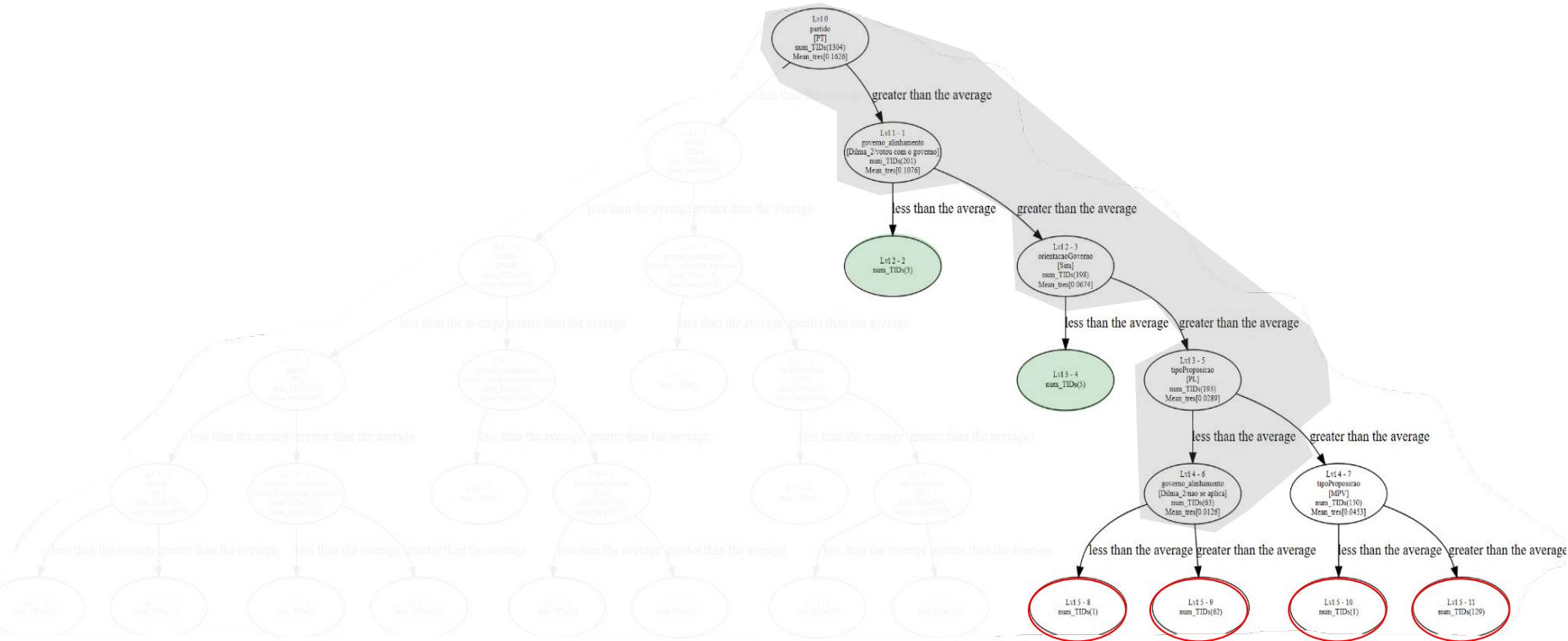


- This is a small cluster with votes of deputies from PT party that voted in line with the government to support on DCR proposition.
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.
- This group has, on avg, **1.69%±0%** of presence during the period with a coefficient of variance equal to **0%** (low dispersion).

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Chico D'Angelo	1	1	1	1.69	17/4/16 to 17/4/16
Miguel Corrêa	2	1	1	1.69	17/4/16 to 17/4/16
Patrus Ananias	1	1	1	1.69	17/4/16 to 17/4/16
Rejane Dias	2	1	1	1.69	17/4/16 to 17/4/16
Zeca do PT	1	1	1	1.69	17/4/16 to 17/4/16

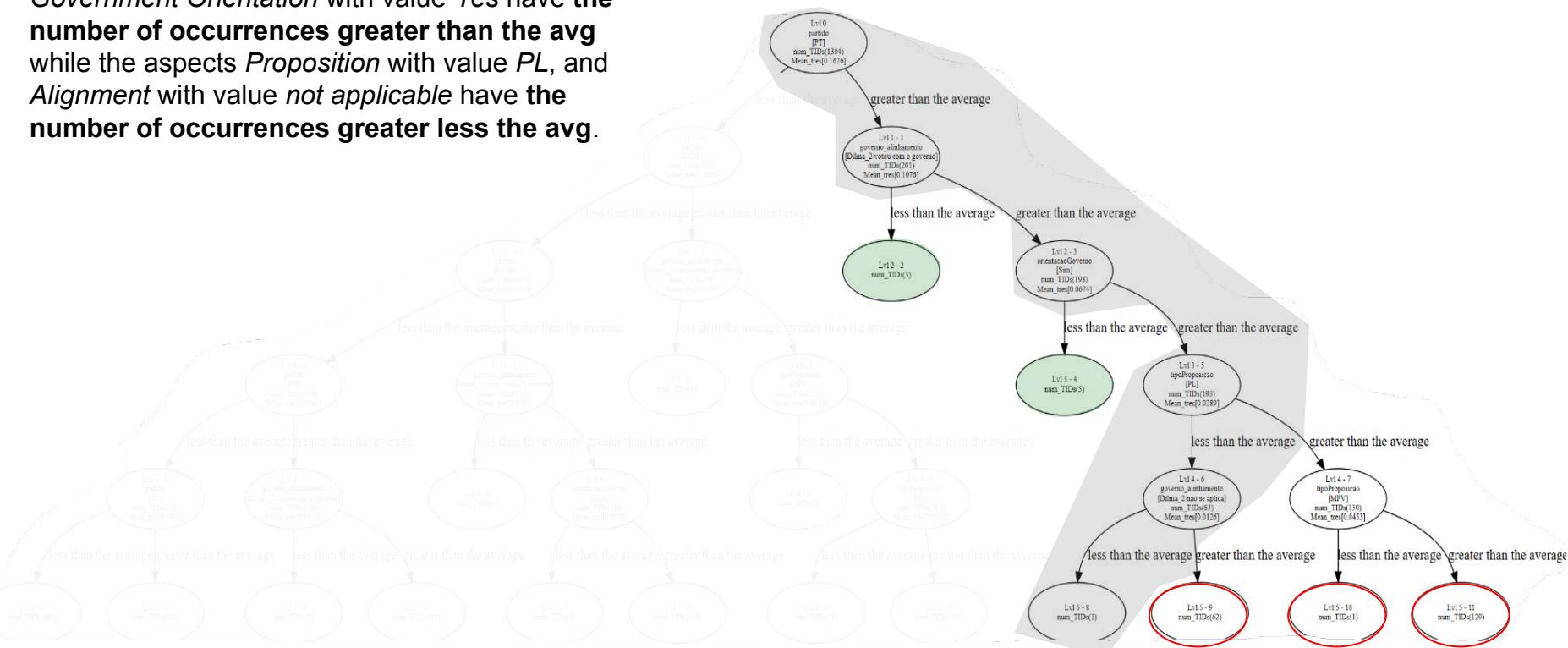
3.1.3. Dilma (2° term)

- Clusters 5-8 and 5-9 share the same aspect path.



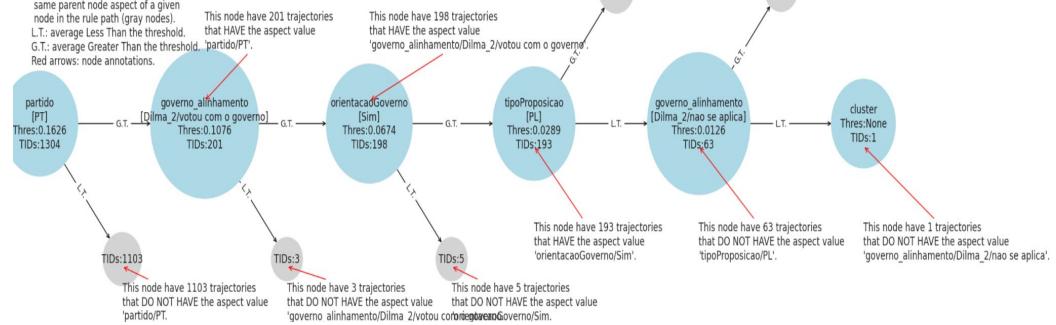
3.1.3. Dilma (2° term)

- In cluster 5-8, the aspects *Party* with value *PT*, *Alignment* with value *in line with government*, *Government Orientation* with value *Yes* have the number of occurrences greater than the avg while the aspects *Proposition* with value *PL*, and *Alignment* with value *not applicable* have the number of occurrences greater less the avg.



3.1.3. Dilma (2° term)

Notes!
 Rule path: the straight line direction (blue nodes).
 Neighbor node the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).
 L.T.: average Less Than the threshold.
 G.T.: average Greater Than the threshold. _partido/PT.
 Red arrows: node annotations.



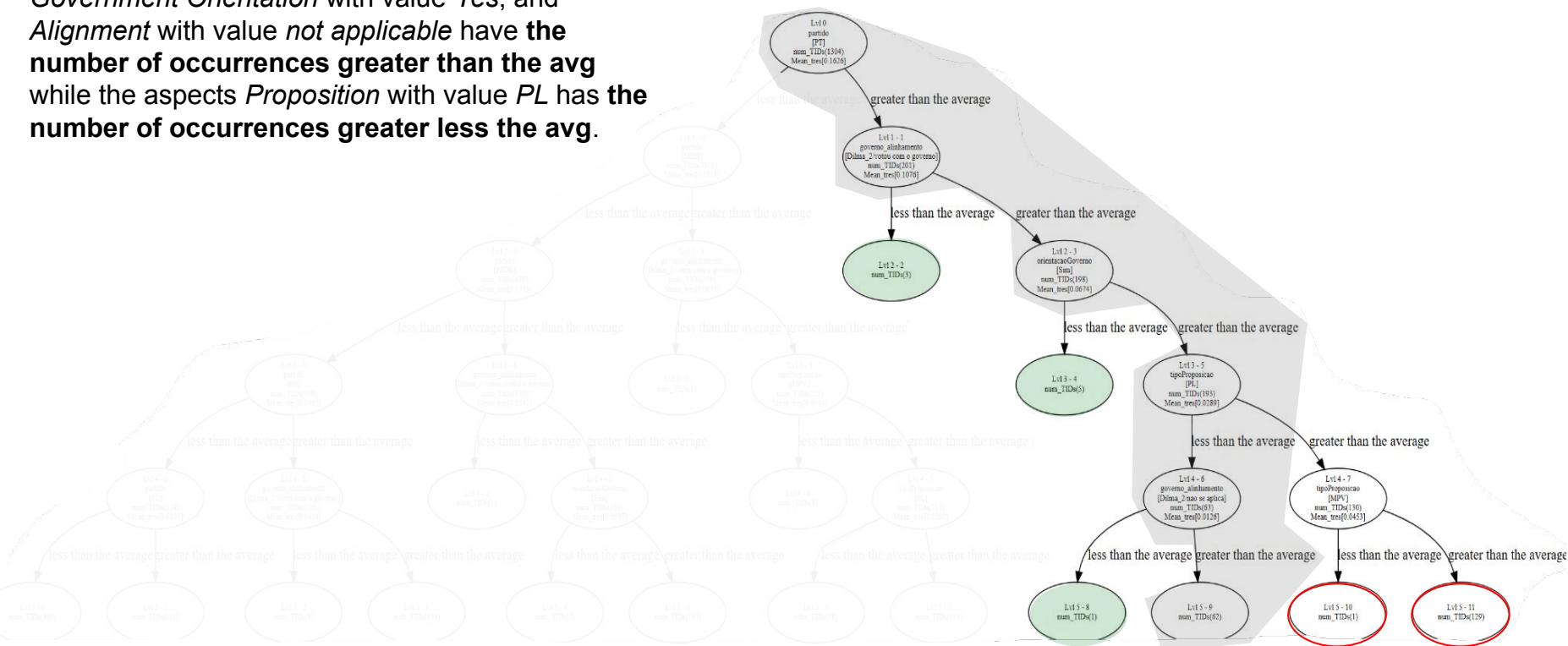
- This is a small cluster with one vote of a deputy from PT party that voted in line with the government to support on MPV proposition.
- This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Miguel Corrêa	2	1	1	0.83	7/7/15 to 7/7/15



3.1.3. Dilma (2° term)

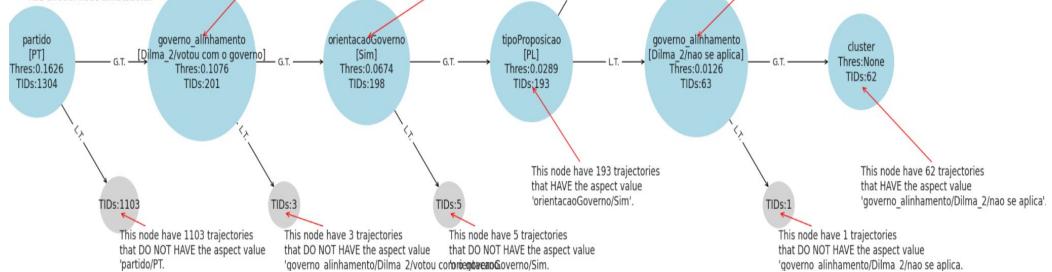
- In cluster 5-9, the aspects *Party* with value *PT*, *Alignment* with value *in line with government*, *Government Orientation* with value *Yes*, and *Alignment* with value *not applicable* have the number of occurrences greater than the avg while the aspects *Proposition* with value *PL* has the number of occurrences greater less the avg.



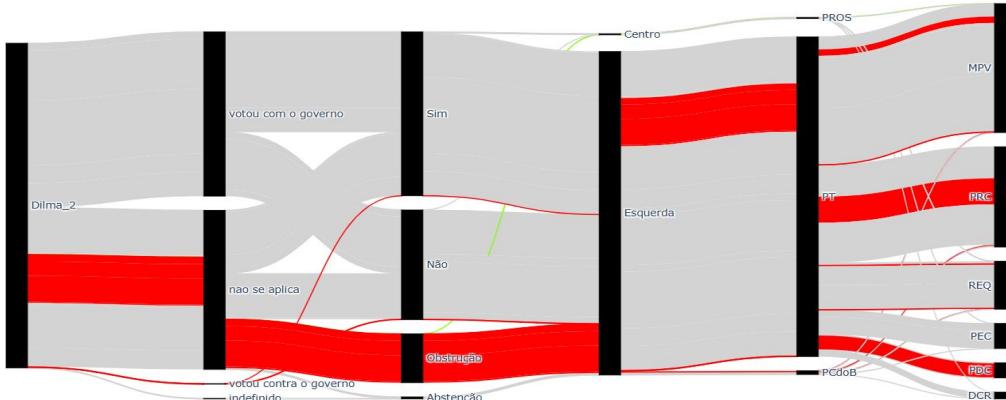
3.1.3. Dilma (2º term)

Notes!

Rule path: the straight line direction (blue nodes).
 Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).
 L.T.: average Less Than the threshold.
 G.T.: average Greater Than the threshold. 'partido/PT'.
 Red arrows: node annotations.



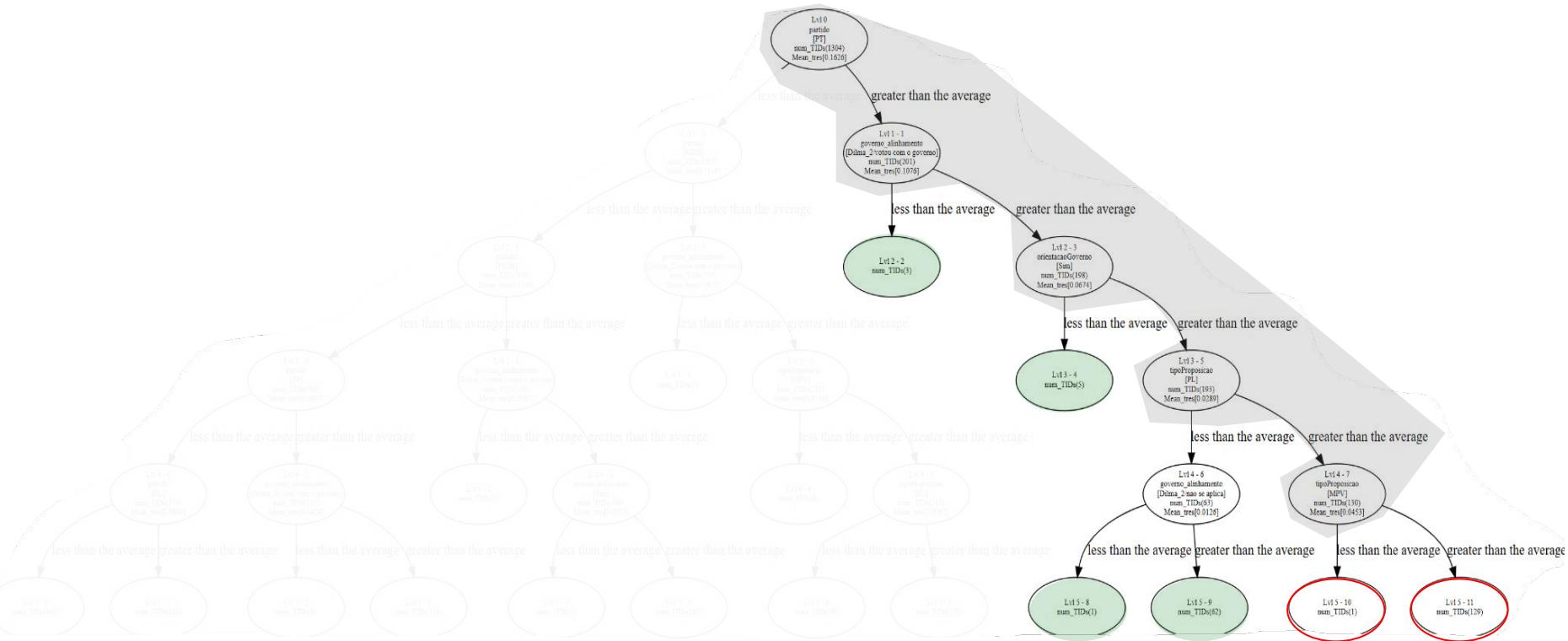
Node: Lvl 5 - 9; Split: max_red; Government: Dilma_2
 TIDs: 62; Unique deputies: 62; Total votes: 2693; avg_len: 43.44 ± 13.1
 from 2015-07-07 to 2016-05-04



- **This is a cluster with votes of deputies from PT party that mainly supported the government (84.92%). Although the support, some deputies also made opposition mainly for PRC and PDC propositions.**
- **95.16% (59) of deputies voted against the government at least once.**
- **This group has, on avg, $73.57\% \pm 22.38\%$ of presence during the period with a coefficient of variance equal to **30.42%** (very high dispersion).**
- **99.82% (2278) of the in line votes in this cluster occurred in the 1º semester of 2016, while 100% (411) of the opposition votes occurred in the same period.**

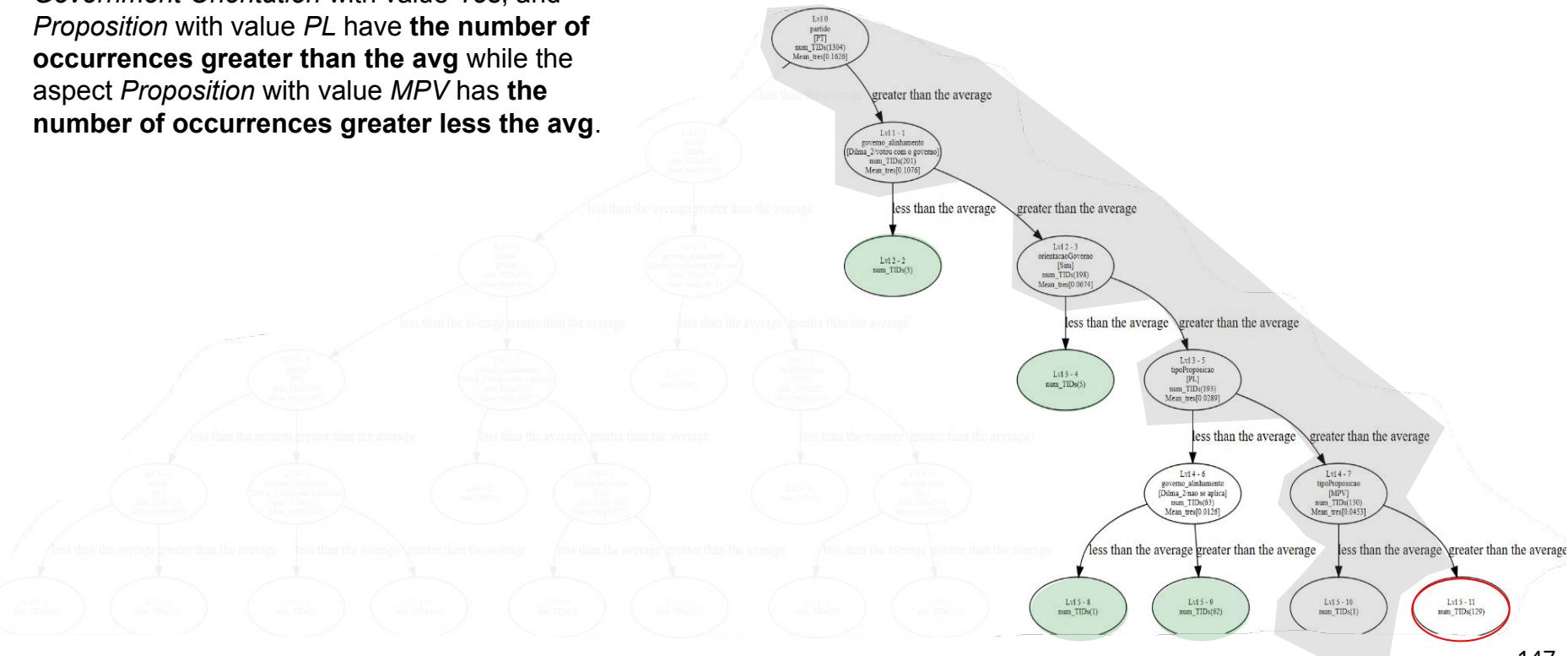
3.1.3. Dilma (2° term)

- Clusters 5-10 and 5-11 share the same aspect path.



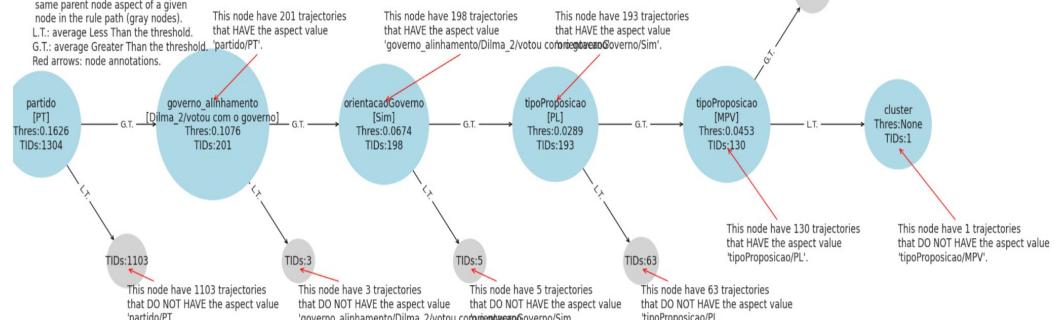
3.1.3. Dilma (2° term)

- In cluster 5-10, the aspects *Party* with value *PT*, *Alignment* with value *in line with government*, *Government Orientation* with value *Yes*, and *Proposition* with value *PL* have **the number of occurrences greater than the avg** while the aspect *Proposition* with value *MPV* has **the number of occurrences greater less the avg.**

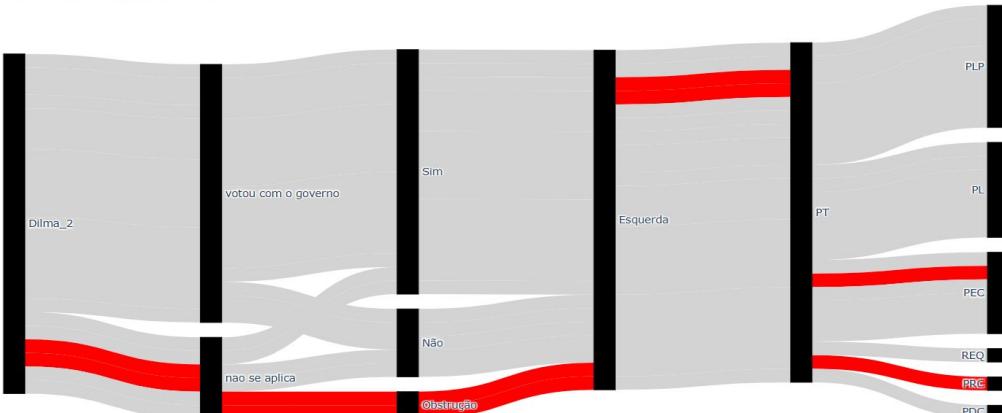


3.1.3. Dilma (2° term)

Notes!
 Rule path: the straight line direction (blue nodes).
 Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).
 L.T.: average Less Than the threshold.
 G.T.: average Greater Than the threshold.
 Red arrows: node annotations.



Node: Lvl 5 - 10; Split: max_red; Government: Dilma_2
 TIDs: 1; Unique deputies:1; Total votes: 25; avg_len: 25.0 ± nan
 from 2015-02-03 to 2015-03-19

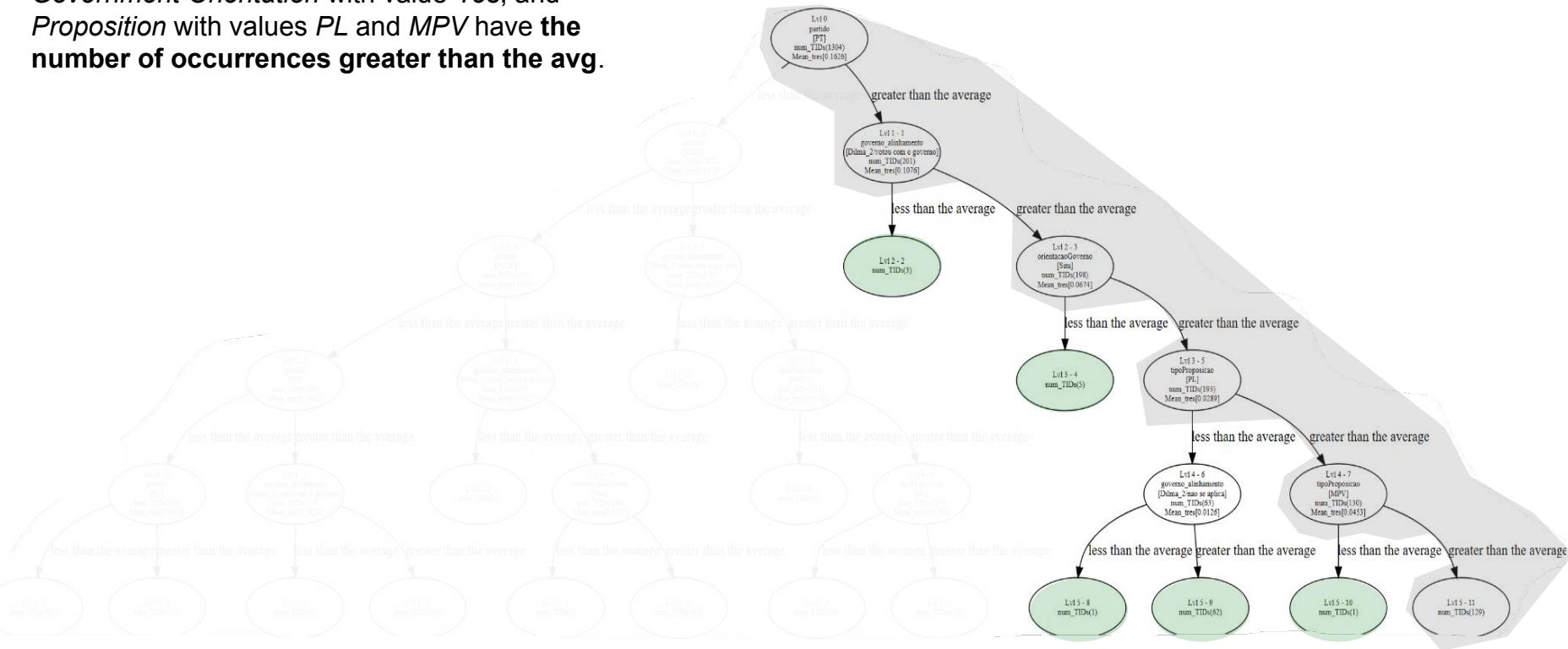


- **This is a small cluster with votes of one deputy from PT party where the majority of votes are in line with the government to support on PLP and PL propositions.**
- **This cluster has short trajectories which means that the deputies appear infrequently at parliament in the specific period.**

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Rejane Dias	2	1	15	17.01	3/2/15 to 19/3/15

3.1.3. Dilma (2° term)

- In cluster 5-11, the aspects *Party* with value *PT*, *Alignment* with value *in line with government*, *Government Orientation* with value *Yes*, and *Proposition* with values *PL* and *MPV* have the number of occurrences greater than the avg.



3.1.3. Dilma (2º term)

Notes!

Rule path: the straight line direction (blue nodes).

Neighbor node: the other path/cluster from the

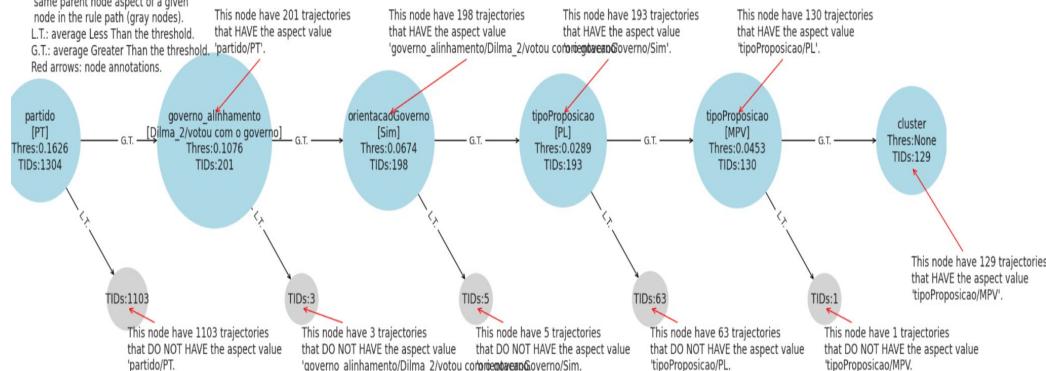
same parent node aspect of a given

node in the rule path (gray nodes).

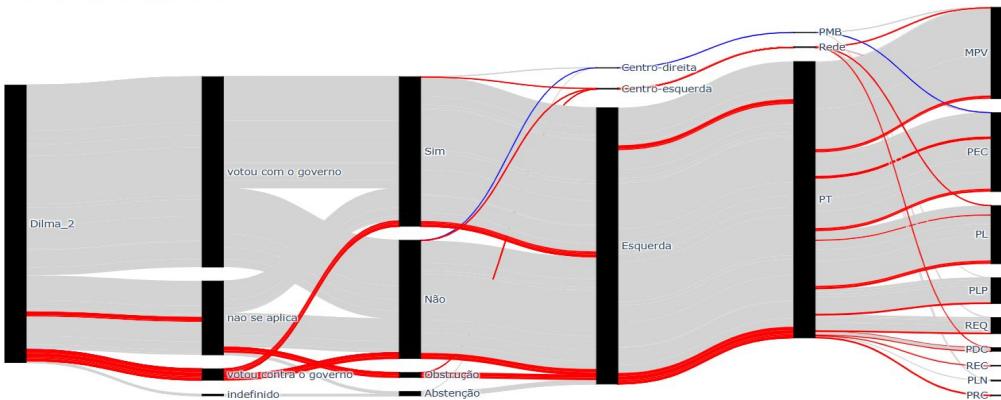
L.T.: average Less than the threshold.

G.T.: average Greater Than the threshold.

Red arrows: node annotations.



Node: Lvl 5 - 11; Split: max_red; Government: Dilma_2
TIDs: 129; Unique deputies: 66; Total votes: 14377; avg_len: 111.45 ± 19.33
from 2015-02-03 to 2015-12-15



- This is a cluster with the majority of votes from PT party that mainly supported the government (94.04%). Although the support, some deputies also made opposition in this group (5.92%).
- 98.48% (65) of deputies voted against the government at least once.
- This group has, on avg, $83.64\% \pm 13.04\%$ of presence during the period with a coefficient of variance equal to 15.592% (medium dispersion).
- All votes in this cluster occurred in 2015.

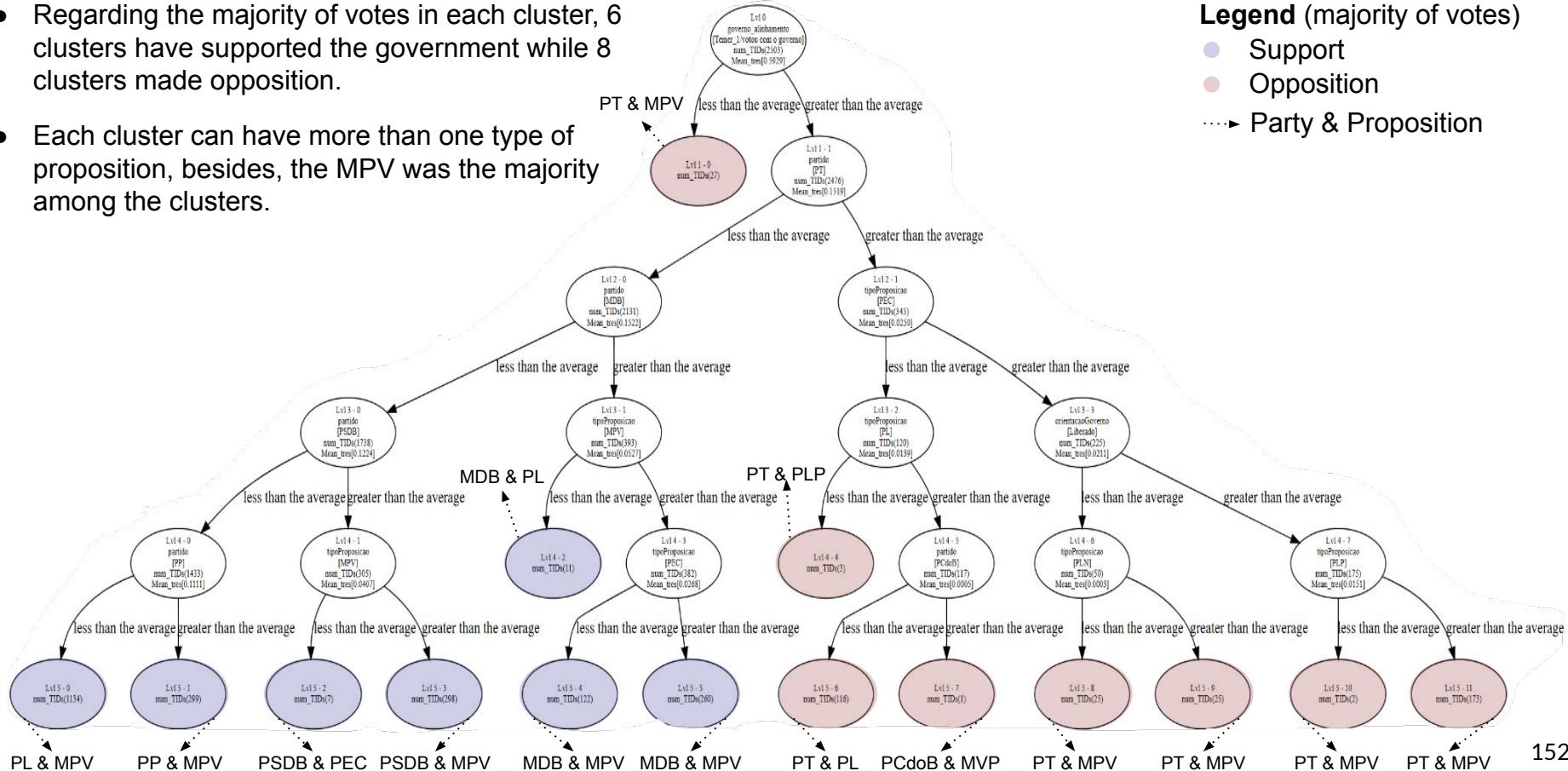
Temer government

3.1.4. Temer government: overview support (clusters)

- Regarding the majority of votes in each cluster, 6 clusters have supported the government while 8 clusters made opposition.
- Each cluster can have more than one type of proposition, besides, the MPV was the majority among the clusters.

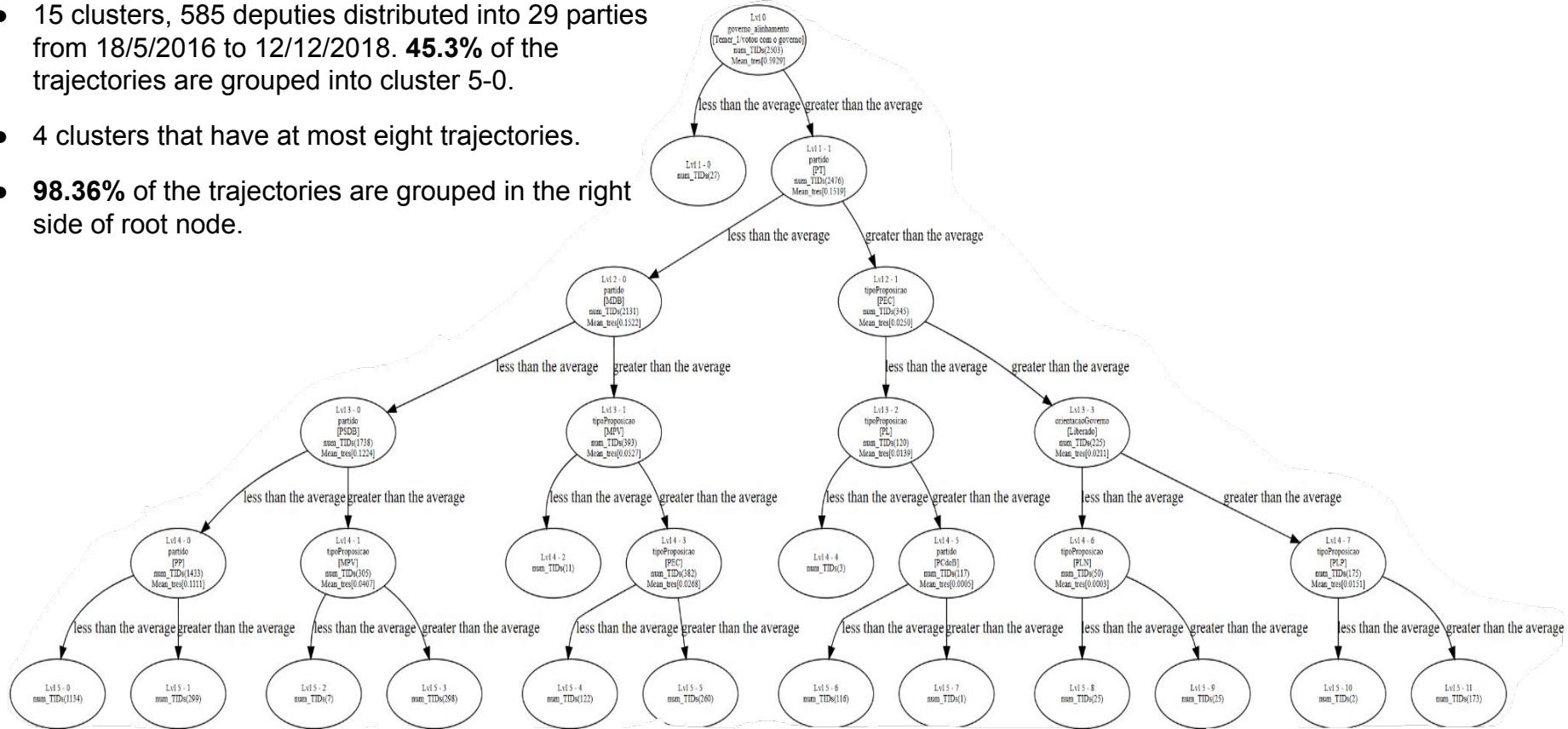
Legend (majority of votes)

- Support (light blue)
- Opposition (light red)
- Party & Proposition (grey dashed arrow)



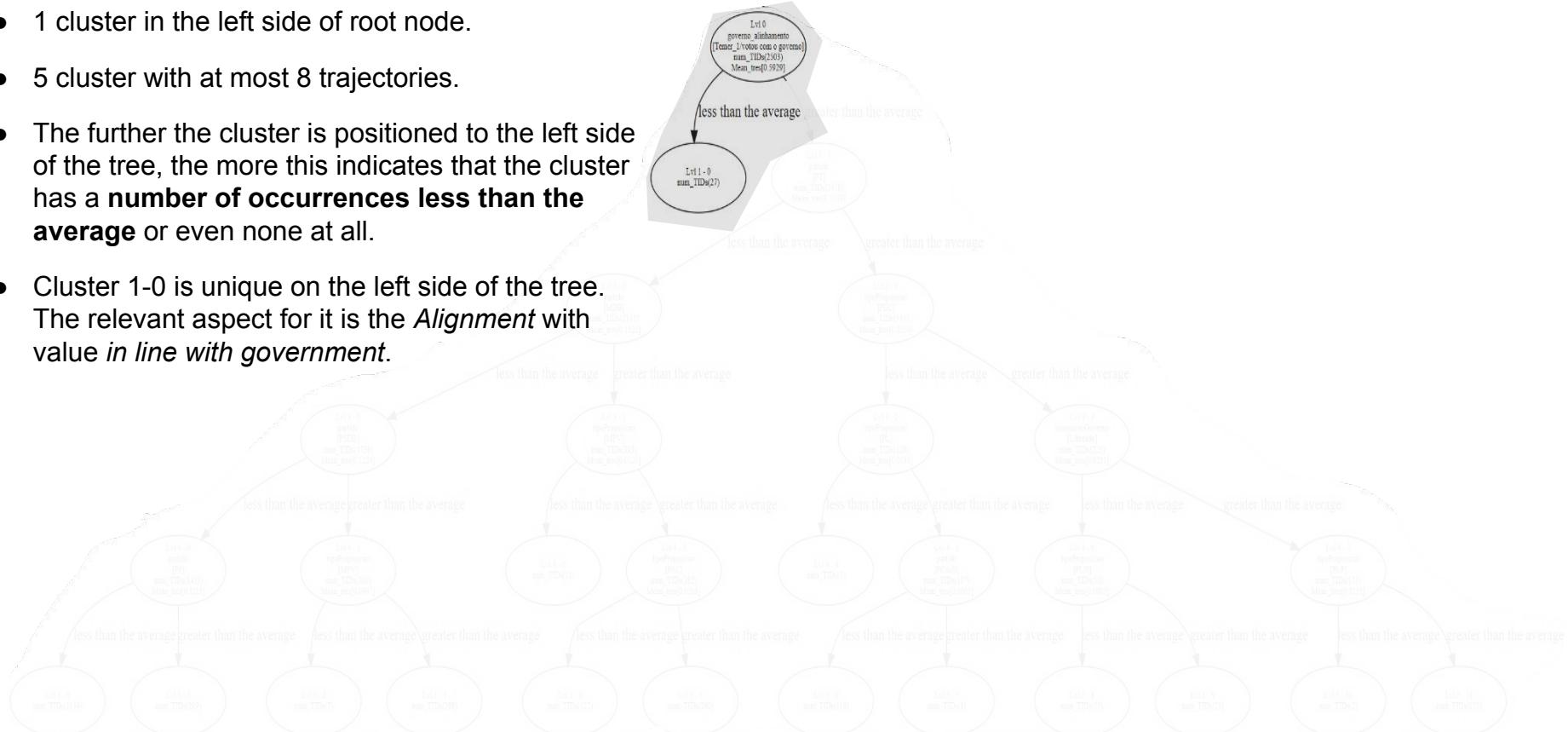
3.1.4. Temer government

- 15 clusters, 585 deputies distributed into 29 parties from 18/5/2016 to 12/12/2018. **45.3%** of the trajectories are grouped into cluster 5-0.
- 4 clusters that have at most eight trajectories.
- **98.36%** of the trajectories are grouped in the right side of root node.

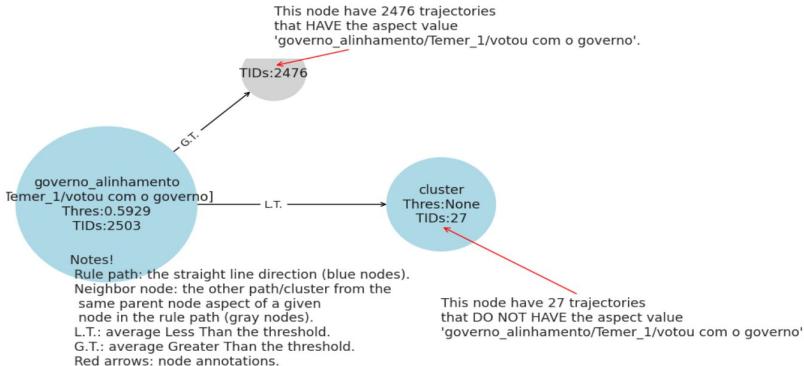


3.1.4. Temer government

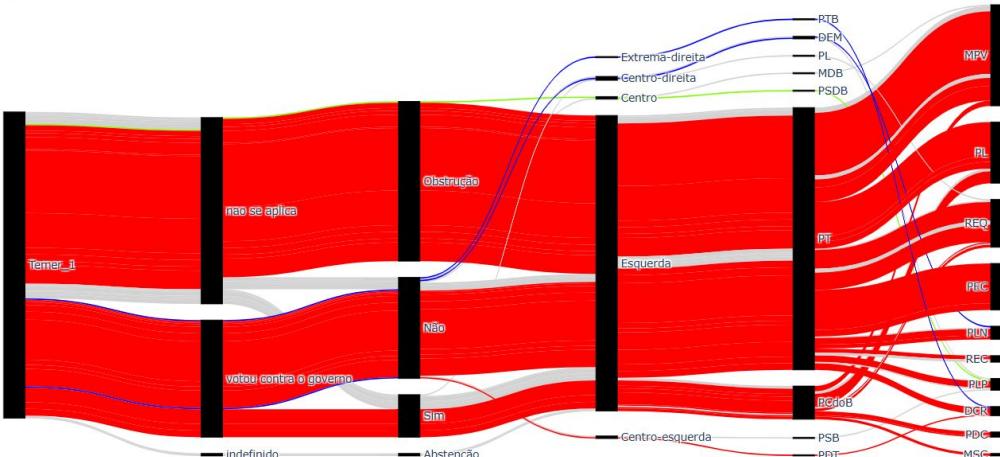
- 1 cluster in the left side of root node.
- 5 cluster with at most 8 trajectories.
- The further the cluster is positioned to the left side of the tree, the more this indicates that the cluster has a **number of occurrences less than the average** or even none at all.
- Cluster 1-0 is unique on the left side of the tree. The relevant aspect for it is the *Alignment with value in line with government*.



3.1.4. Temer government



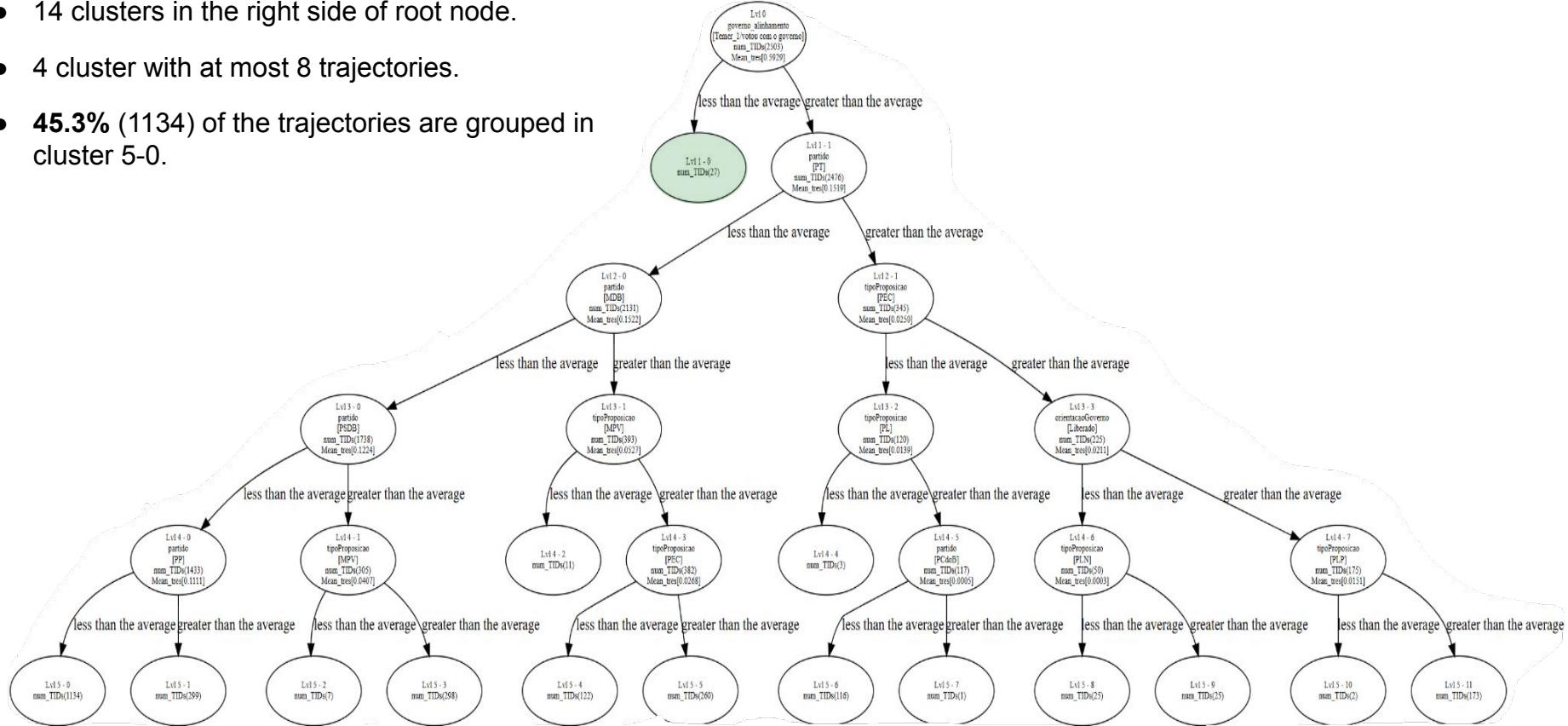
Node: Lvl 1 - 0; Split: max_red; Government: Temer_1
TIDs: 27; Unique deputies: 25; Total votes: 230; avg_len: 8.52 ± 8.09
from 2016-05-18 to 2018-12-05



- This is a cluster mainly formed by deputies from PT party. Moreover, 90.43% (208) of the votes are against the government.
- 52.88% of the votes against the government occurred in the 1º semester of 2016.
- This cluster has short trajectories which means that the **deputies appear infrequently at parliament** in the specific period.
- This group has, on avg, **$19.59\% \pm 20.9\%$** of presence during the period with a coefficient of variance equal to **106.69%** (very high dispersion).

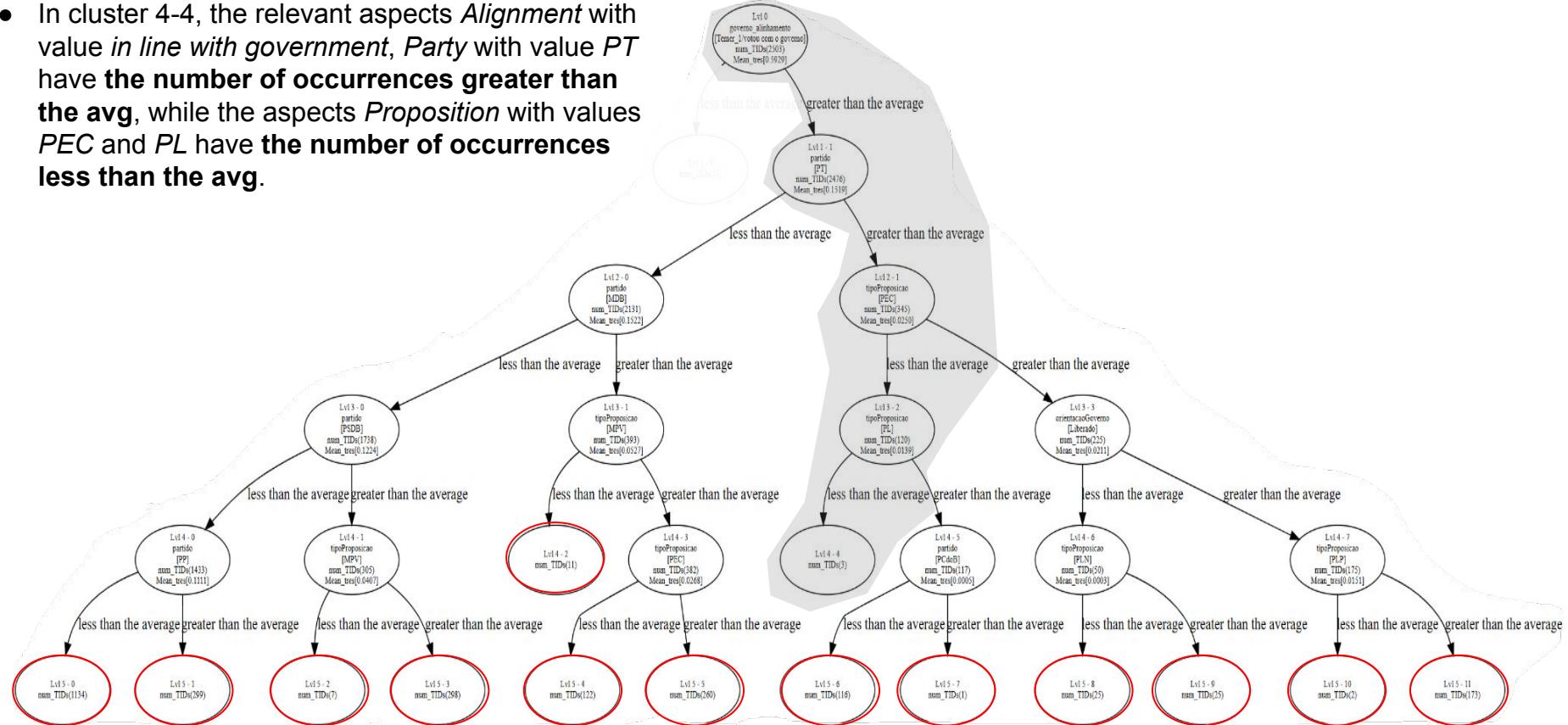
3.1.4. Temer government

- 14 clusters in the right side of root node.
- 4 cluster with at most 8 trajectories.
- **45.3% (1134)** of the trajectories are grouped in cluster 5-0.



3.1.4. Temer government

- In cluster 4-4, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT* have the number of occurrences greater than the avg, while the aspects *Proposition* with values *PEC* and *PL* have the number of occurrences less than the avg.



3.1.4. Temer government

Notes!

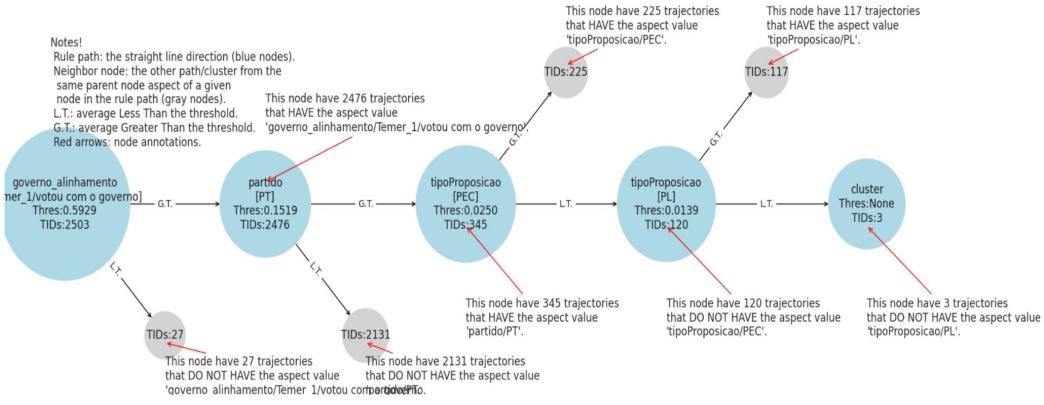
Rule path: the straight line direction (blue nodes).

Neighbor node: the other path/cluster from the same parent node aspect of a given node in the rule path (gray nodes).

L.T.: average Less Than the threshold.

G.T.: average Greater Than the threshold.

Red arrows: node annotations.



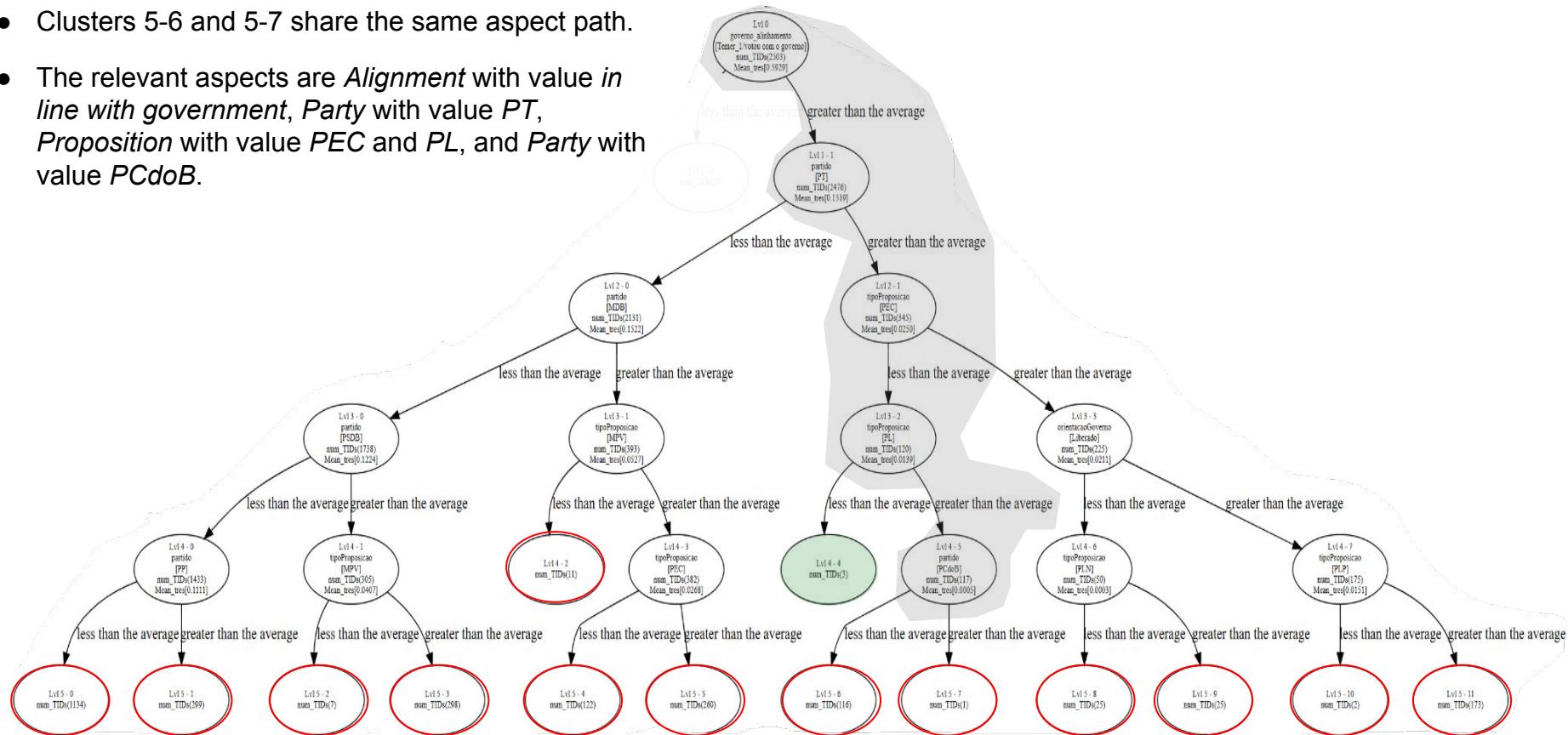
Node: Lvl 4 - 4; Split: max_red; Government: Temer_1
TIDs: 3; Unique deputies: 3; Total votes: 37; avg_len: 12.33 ± 8.08
from 2016-07-05 to 2018-05-22



- **This is a cluster formed by three deputies from PT party where 86.49% (32) of the votes are against the government.**
- **87.5% (28) of the votes against the government occurred in the 2º semester of 2016.**
- This cluster has short trajectories which means that the **deputies appear infrequently at parliament** in the specific period.
- This group has, on avg, **$11.39\% \pm 7.35\%$** of presence during the period with a coefficient of variance equal to **66.02%** (very high dispersion).

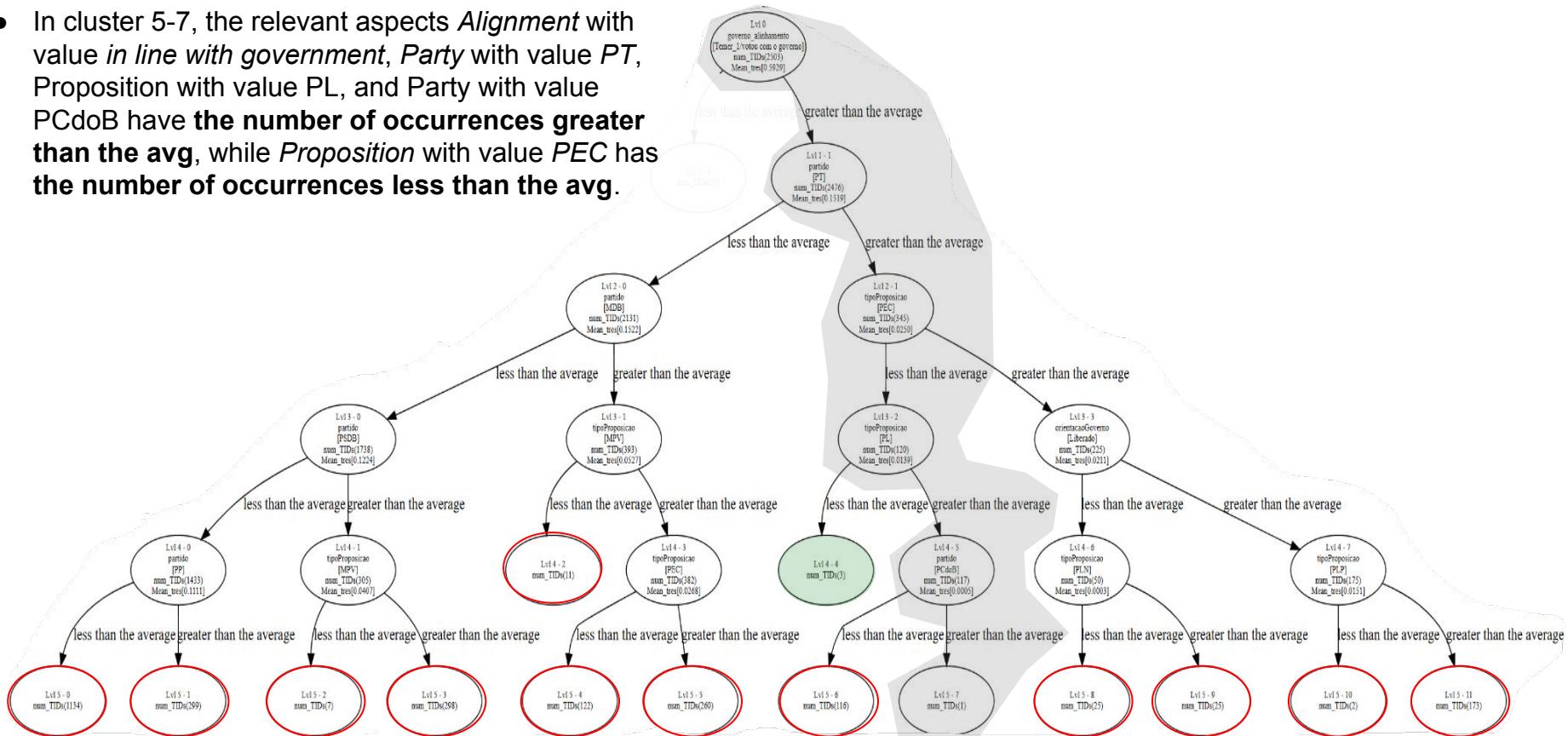
3.1.4. Temer government

- Clusters 5-6 and 5-7 share the same aspect path.
- The relevant aspects are *Alignment* with value *in line with government*, *Party* with value *PT*, *Proposition* with value *PEC* and *PL*, and *Party* with value *PCdoB*.



3.1.4. Temer government

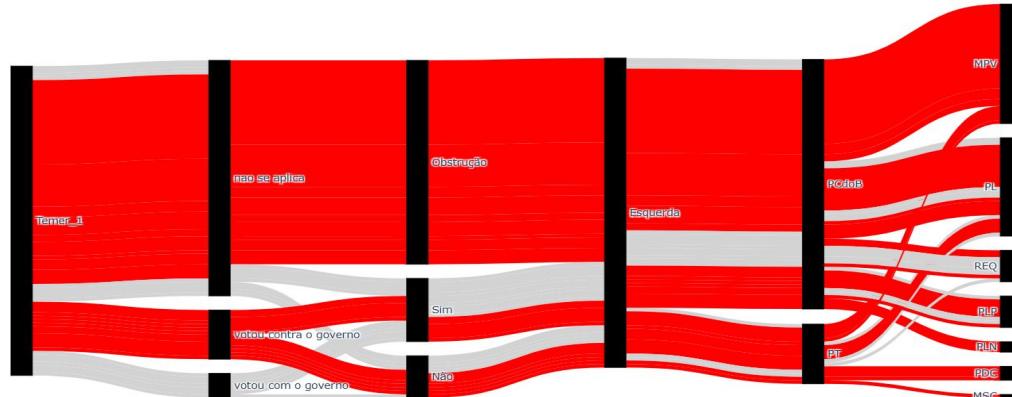
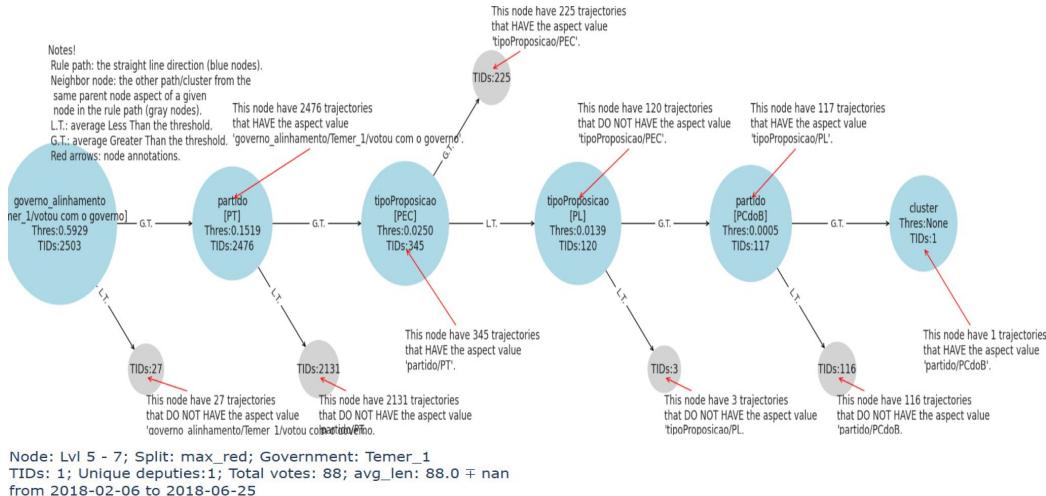
- In cluster 5-7, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, *Proposition* with value *PL*, and *Party* with value *PCdoB* have **the number of occurrences greater than the avg**, while *Proposition* with value *PEC* has **the number of occurrences less than the avg**.



3.1.4. Temer government

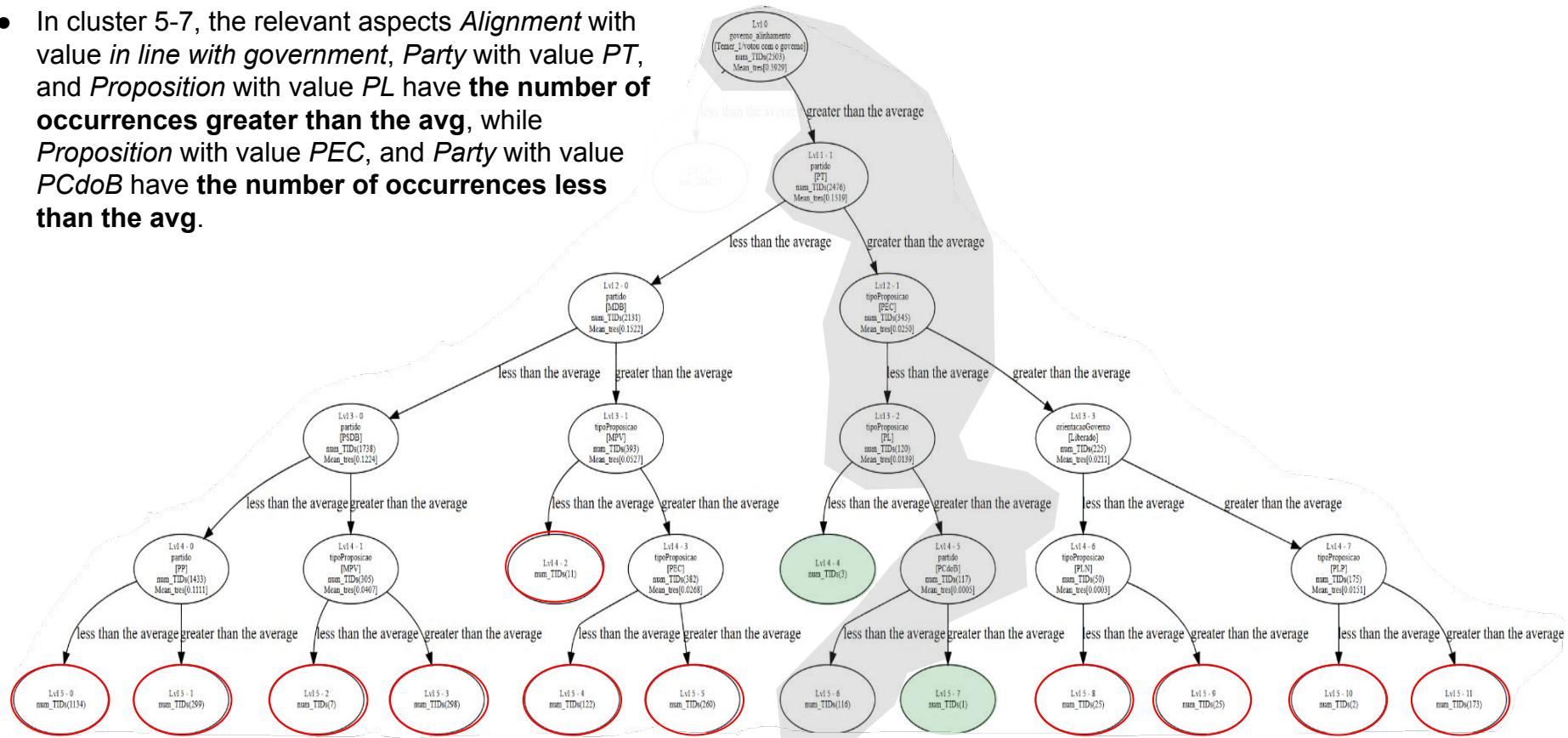
- This is a cluster formed by one deputy that moved from PT to PCdoB party where 81.82% (32) of the votes are against the government.
- This deputy appears frequently at parliament in the specific period. He has 80% of presence.

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Givaldo Vieira	6	1	88	80	3/2/15 to 19/3/15



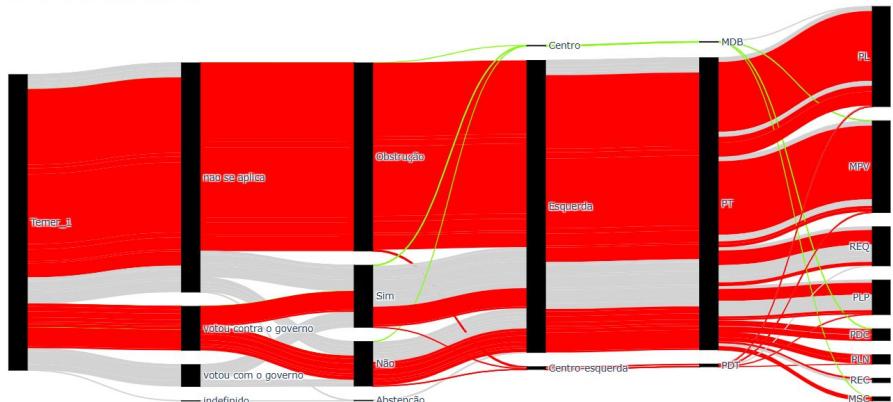
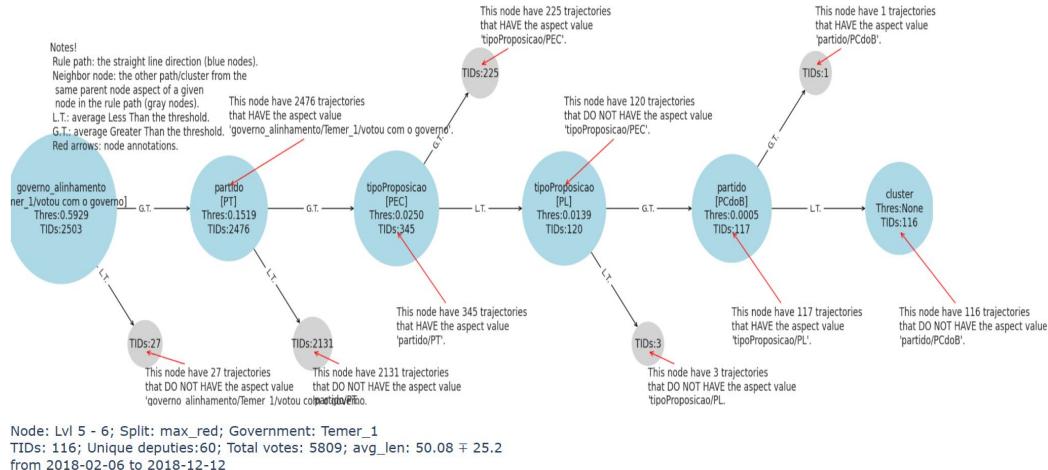
3.1.4. Temer government

- In cluster 5-7, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, and *Proposition* with value *PL* have **the number of occurrences greater than the avg**, while *Proposition* with value *PEC*, and *Party* with value *PCdoB* have **the number of occurrences less than the avg**.



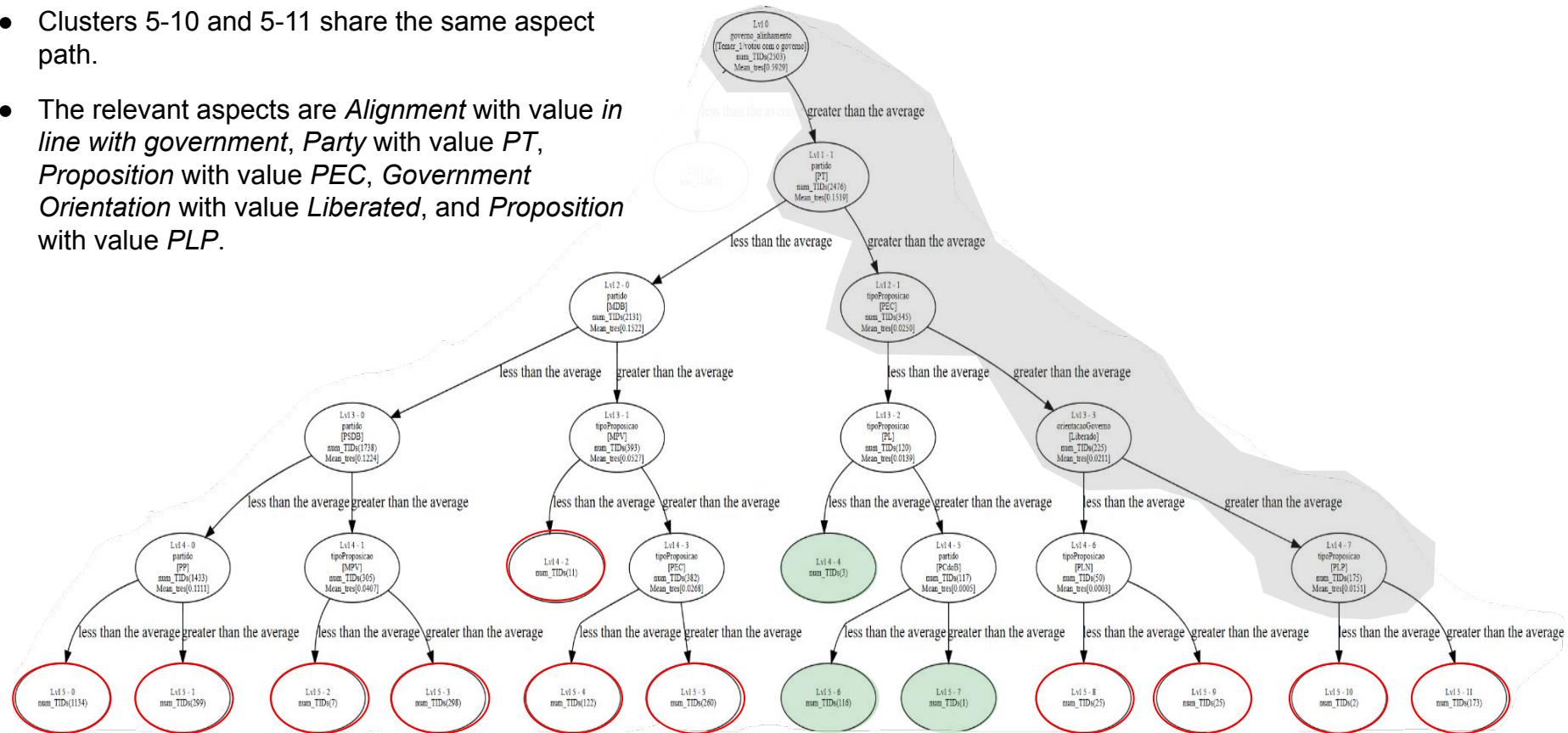
3.1.4. Temer government

- This is a cluster mainly formed by deputies from PT party. Moreover, 78.6% (4566) of the votes are against the government.**
- All deputies voted at least once against the government.
- These deputies appear relatively frequent at parliament in the specific period.
- This group has, on avg, **66.88% \pm 18.68%** of presence during the period with a coefficient of variance equal to **27.93%** (high dispersion).



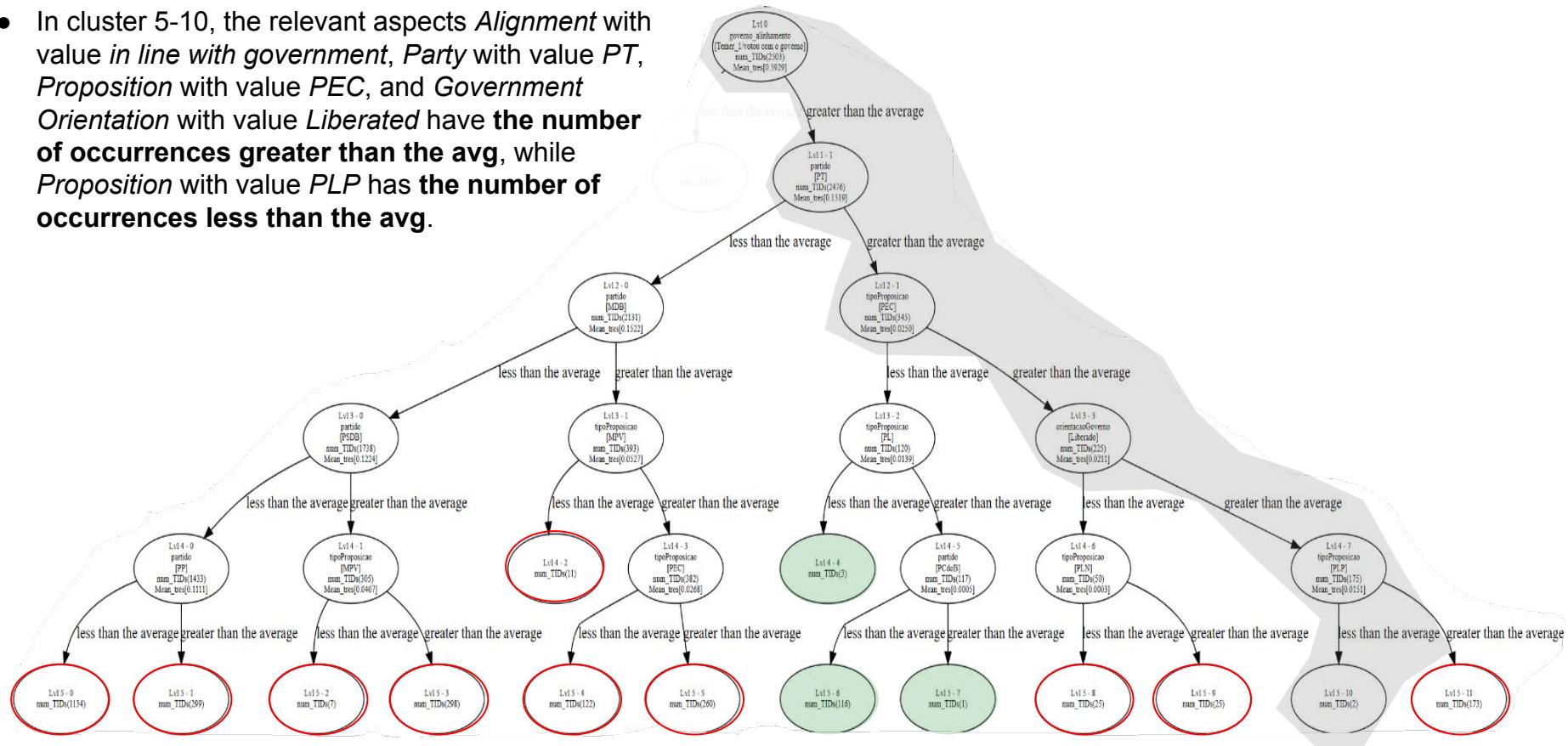
3.1.4. Temer government

- Clusters 5-10 and 5-11 share the same aspect path.
- The relevant aspects are *Alignment with value in line with government*, *Party* with value *PT*, *Proposition* with value *PEC*, *Government Orientation* with value *Liberated*, and *Proposition* with value *PLP*.



3.1.4. Temer government

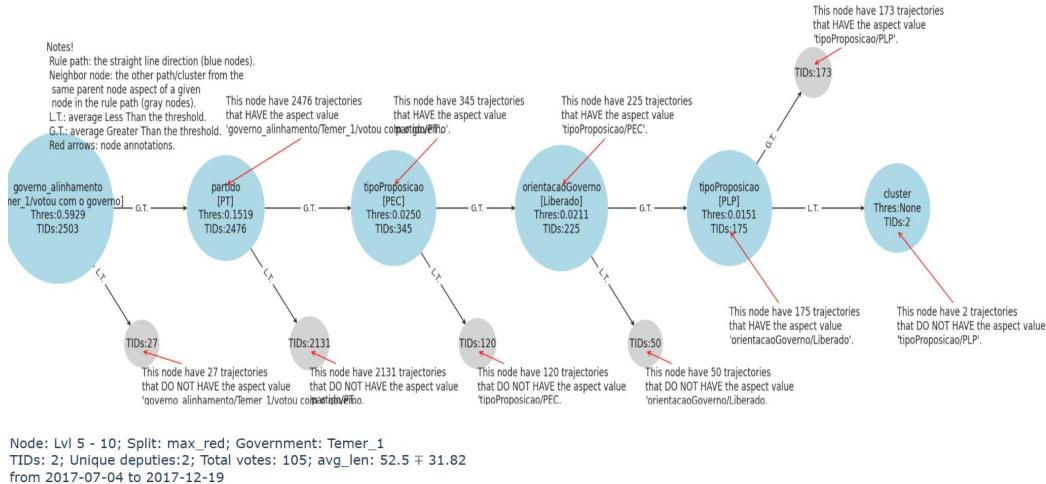
- In cluster 5-10, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, *Proposition* with value *PEC*, and *Government Orientation* with value *Liberated* have **the number of occurrences greater than the avg**, while *Proposition* with value *PLP* has **the number of occurrences less than the avg**.



3.1.4. Temer government

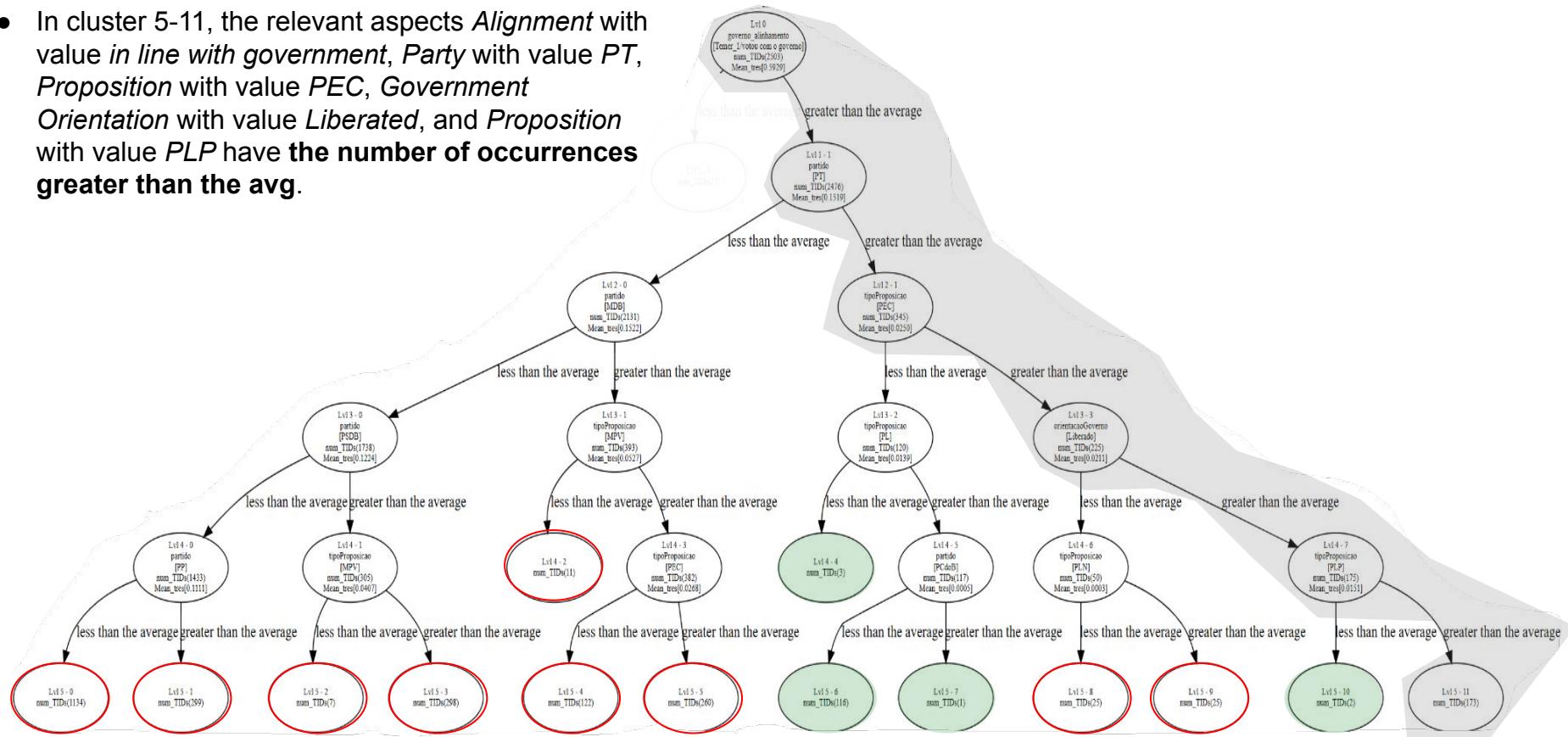
- This is a cluster formed by two deputies that from PT party where 56.19% (59) of the votes are against the government.
- These deputies appear relatively frequent at parliament in the specific period.

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Jorge Solla	6	1	75	58.59	4/7/17 to 19/12/17
Robinson Almeida	2	1	30	23.44	4/7/17 to 20/9/17



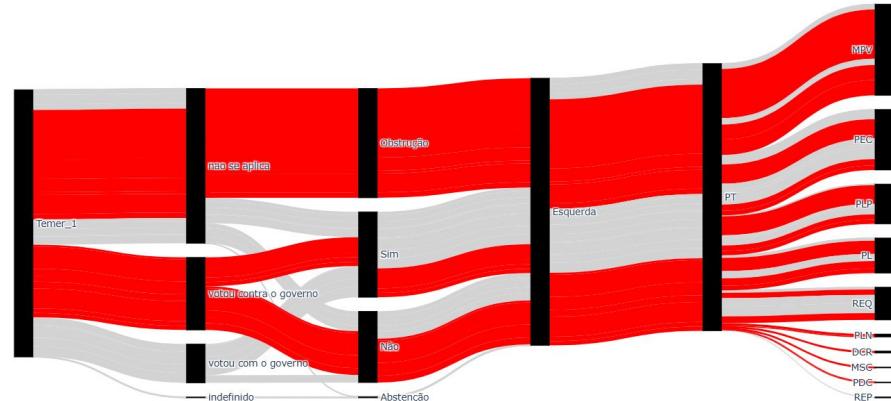
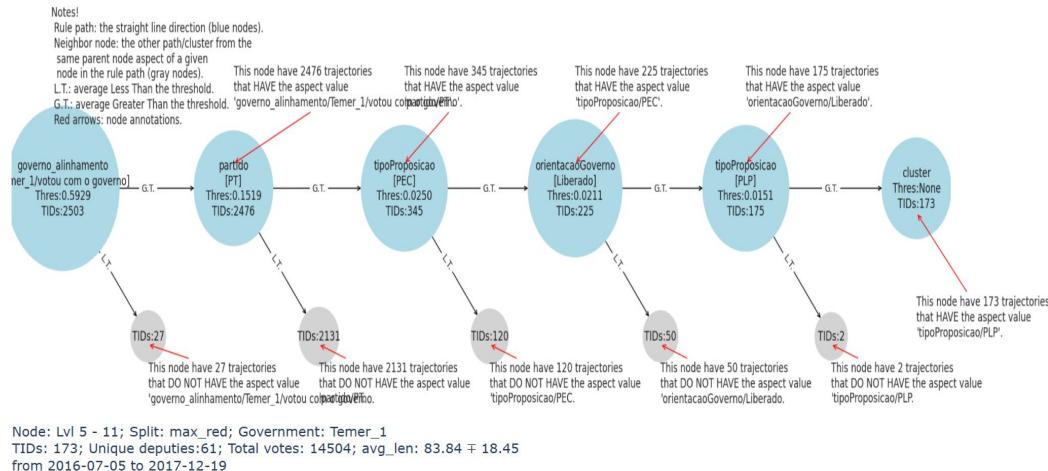
3.1.4. Temer government

- In cluster 5-11, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, *Proposition* with value *PEC*, *Government Orientation* with value *Liberated*, and *Proposition* with value *PLP* have the number of occurrences greater than the avg.



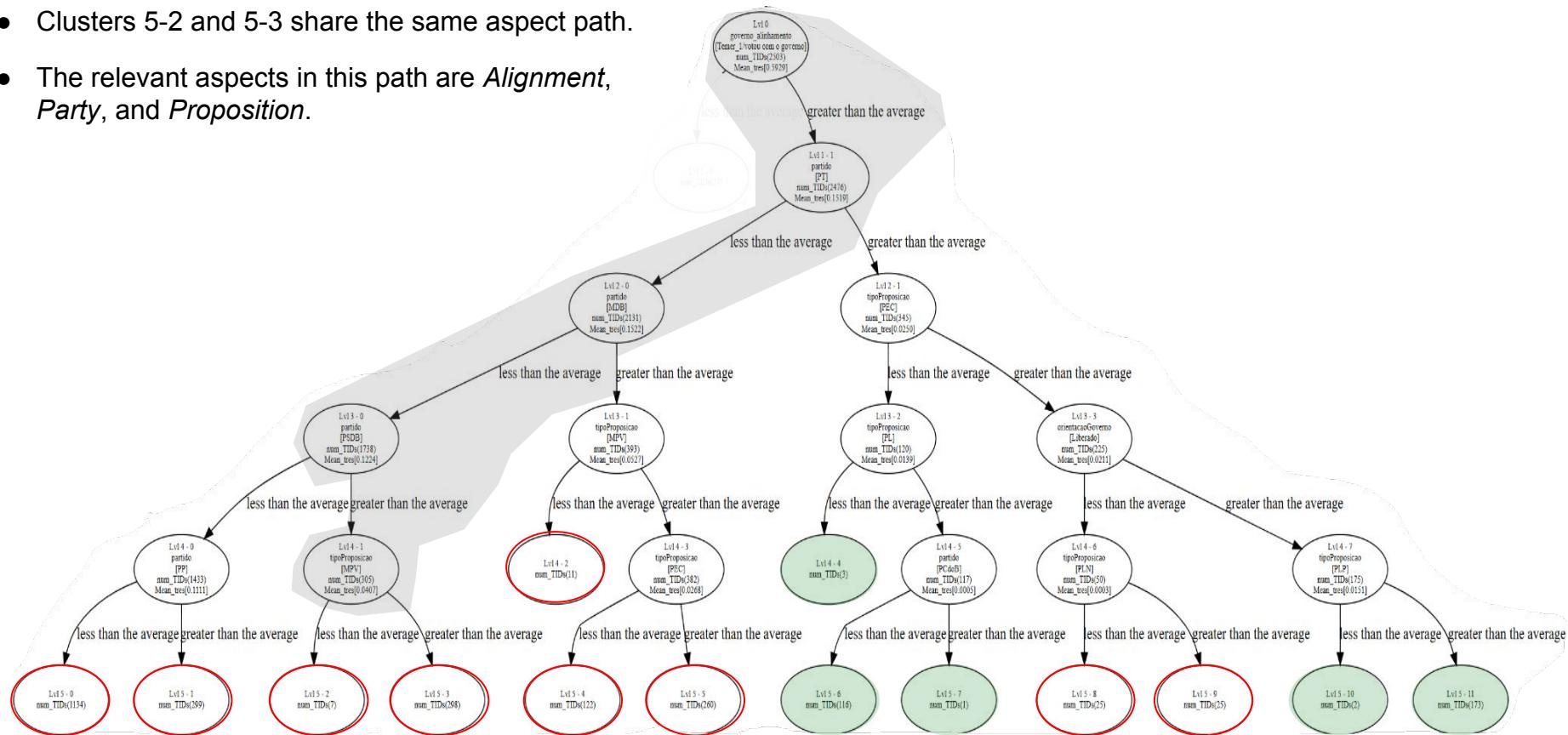
3.1.4. Temer government

- This is a cluster formed by deputies from PT party. Moreover, 68.09% (9876) of the votes are against the government.**
- All deputies voted at least once against the government.
- These deputies appear relatively frequent at parliament** in the specific period.
- This group has, on avg, **75.46% \pm 14.27%** of presence during the period with a coefficient of variance equal to **18.91%** (medium dispersion).



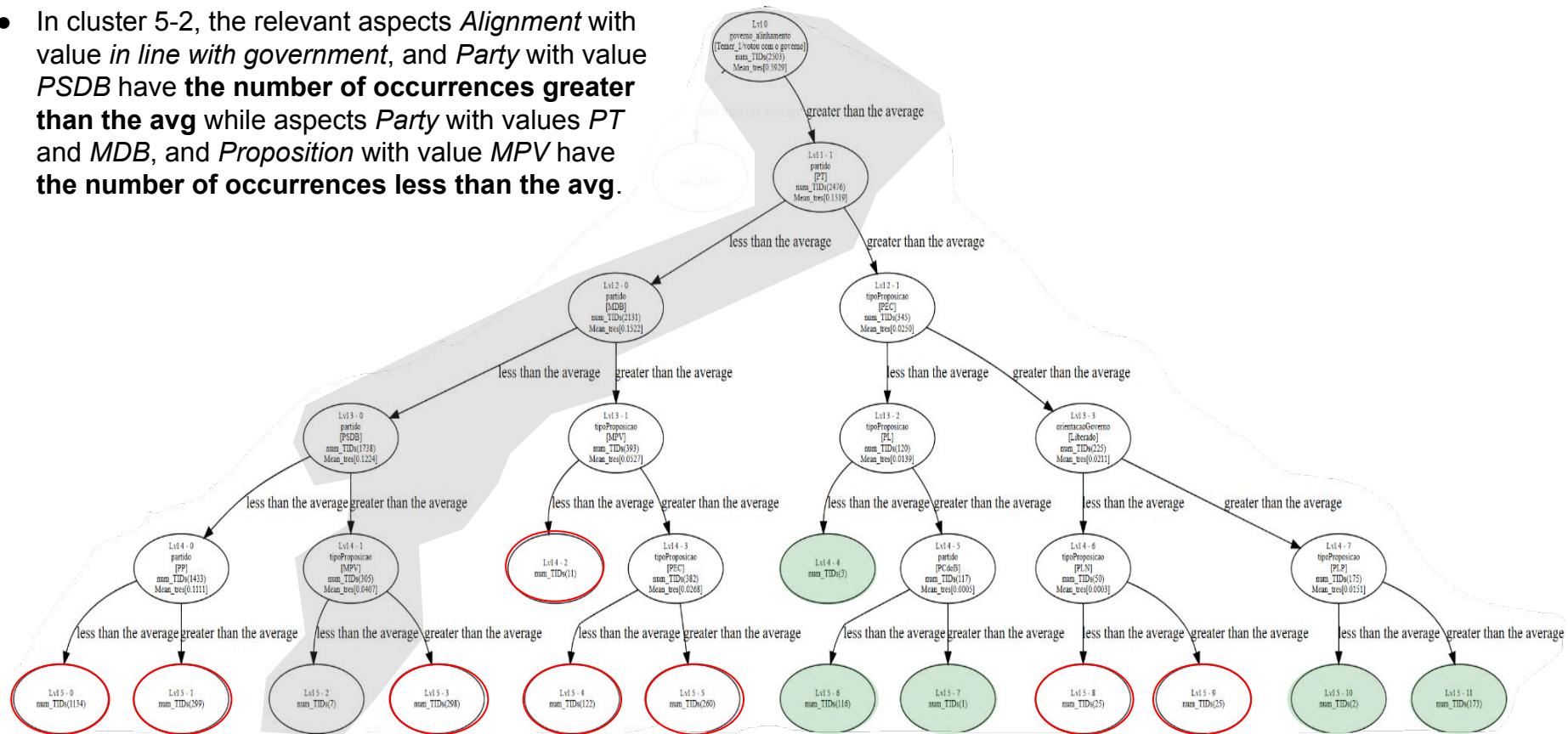
3.1.4. Temer government

- Clusters 5-2 and 5-3 share the same aspect path.
- The relevant aspects in this path are *Alignment*, *Party*, and *Proposition*.



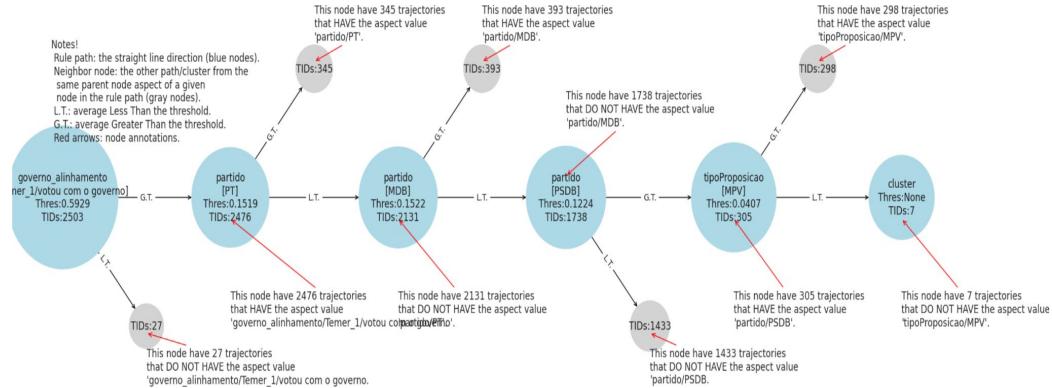
3.1.4. Temer government

- In cluster 5-2, the relevant aspects *Alignment* with value *in line with government*, and *Party* with value *PSDB* have the **number of occurrences greater than the avg** while aspects *Party* with values *PT* and *MDB*, and *Proposition* with value *MPV* have the **number of occurrences less than the avg**.

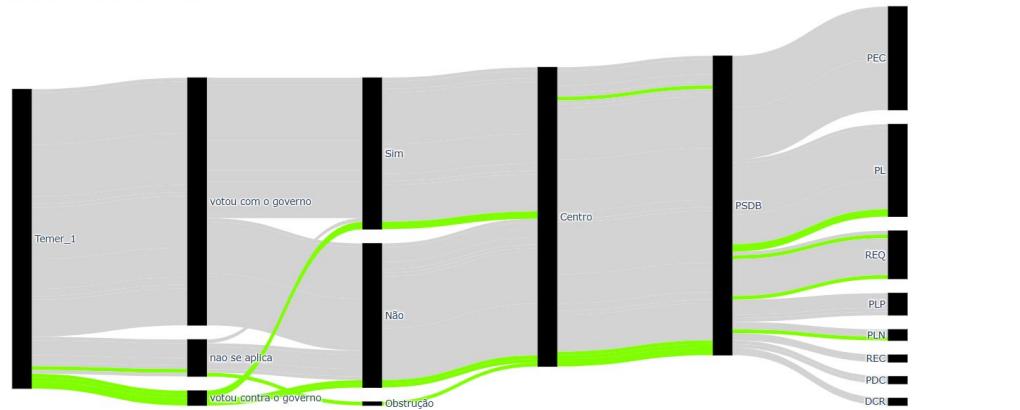


3.1.4. Temer government

- This is a cluster formed by deputies from PSDB party that mainly voted in line with government.**
- These deputies appear relatively infrequent at parliament in the specific period.**
- This group has, on avg, $17.8\% \pm 21.99\%$ of presence during the period with a coefficient of variance equal to **123.54%** (very high dispersion).**

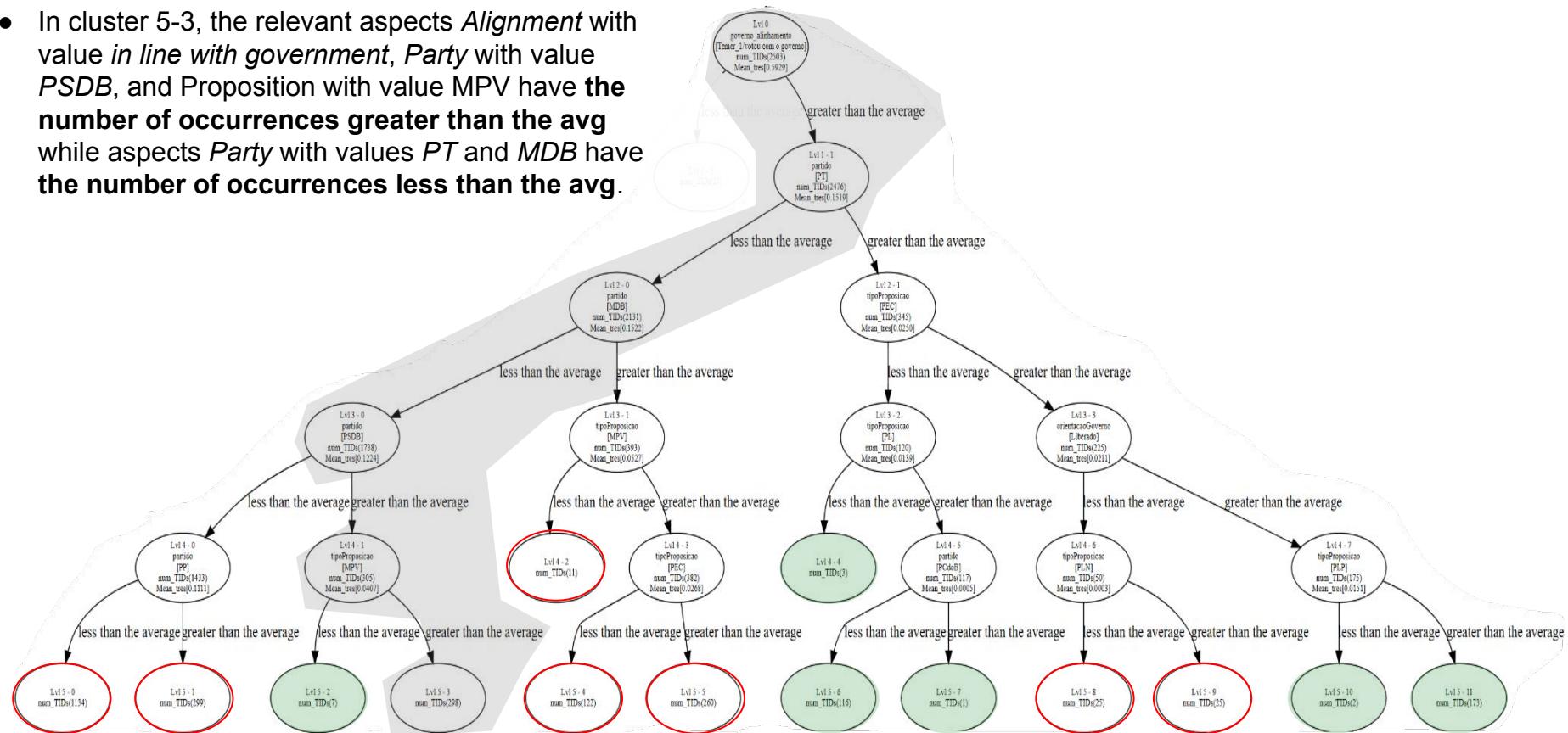


Node: Lvl 5 - 2; Split: max_red; Government: Temer_1
 TIDs: 7; Unique deputies:6; Total votes: 81; avg_len: 11.57 ± 12.05
 from 2016-10-10 to 2018-12-12



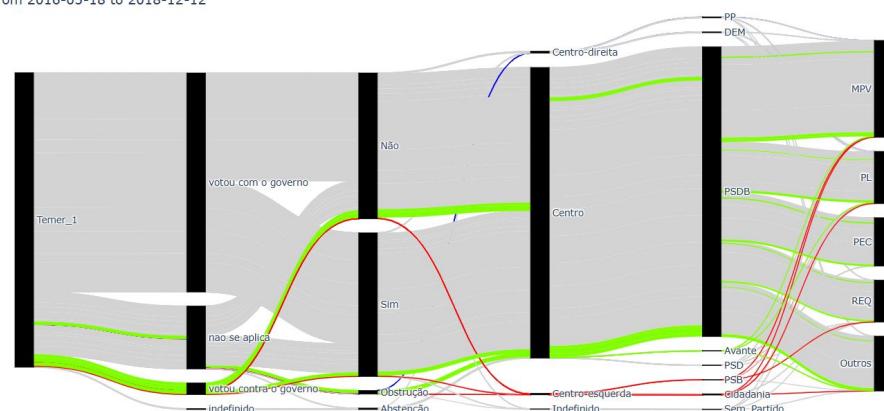
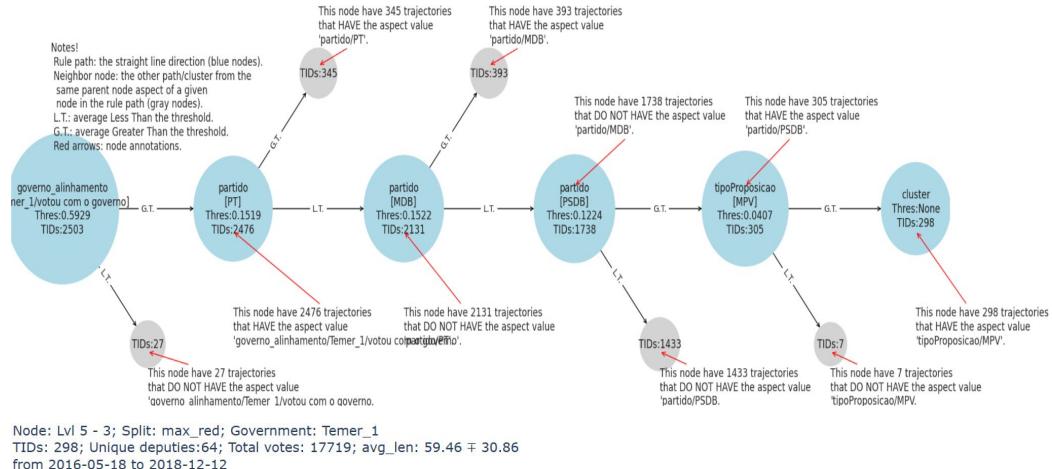
3.1.4. Temer government

- In cluster 5-3, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PSDB*, and *Proposition* with value *MPV* have **the number of occurrences greater than the avg** while aspects *Party* with values *PT* and *MDB* have **the number of occurrences less than the avg**.



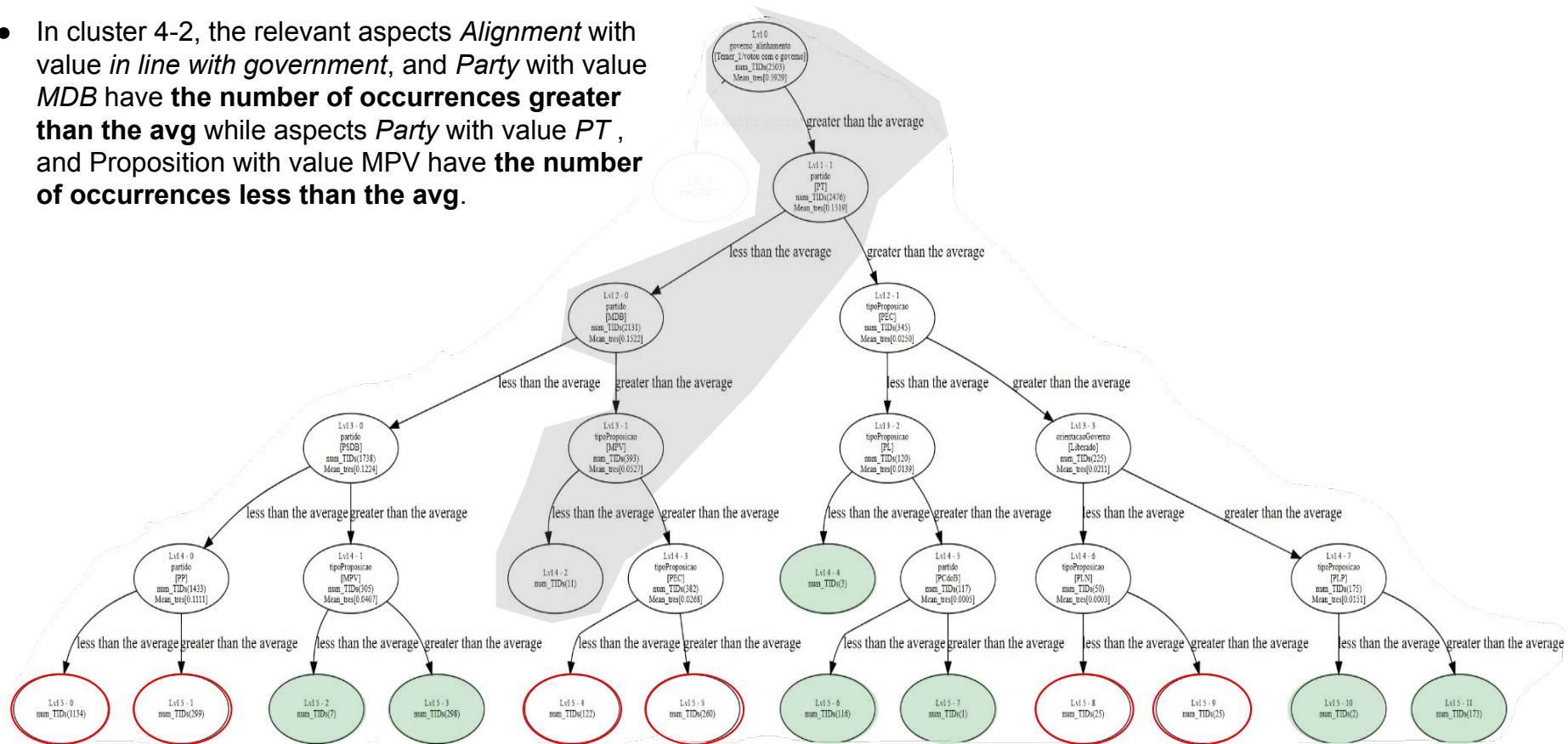
3.1.4. Temer government

- This is a cluster mainly formed by deputies from PSDB party. Moreover, 94.85% (16807) of the votes are in line with government.**
- 41.99%** (7057) of the supported votes occurred in 2017.
- 96.87%** (62) of deputies voted at least once against the government.
- In this cluster, these deputies appear relatively frequent at parliament** in the specific period.
- This group has, on avg, **68.57% \pm 21.1%** of presence during the period with a coefficient of variance equal to **30.77%** (very high dispersion).



3.1.4. Temer government

- In cluster 4-2, the relevant aspects *Alignment* with value *in line with government*, and *Party* with value *MDB* have the number of occurrences greater than the avg while aspects *Party* with value *PT*, and Proposition with value *MPV* have the number of occurrences less than the avg.

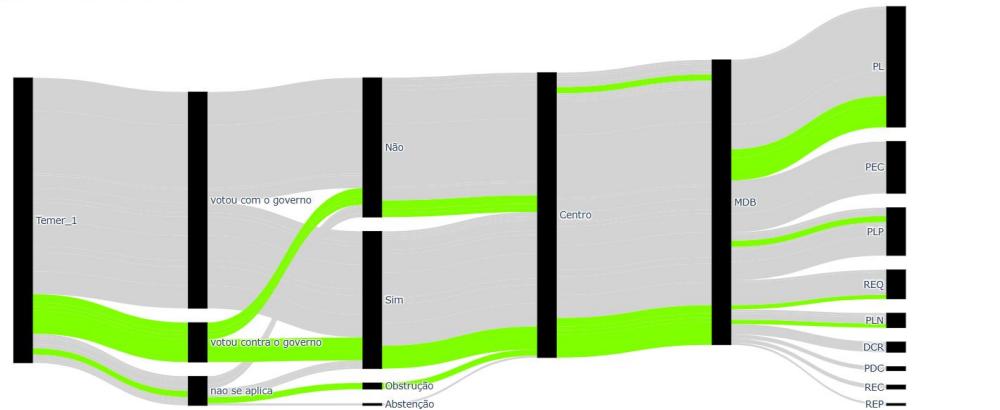
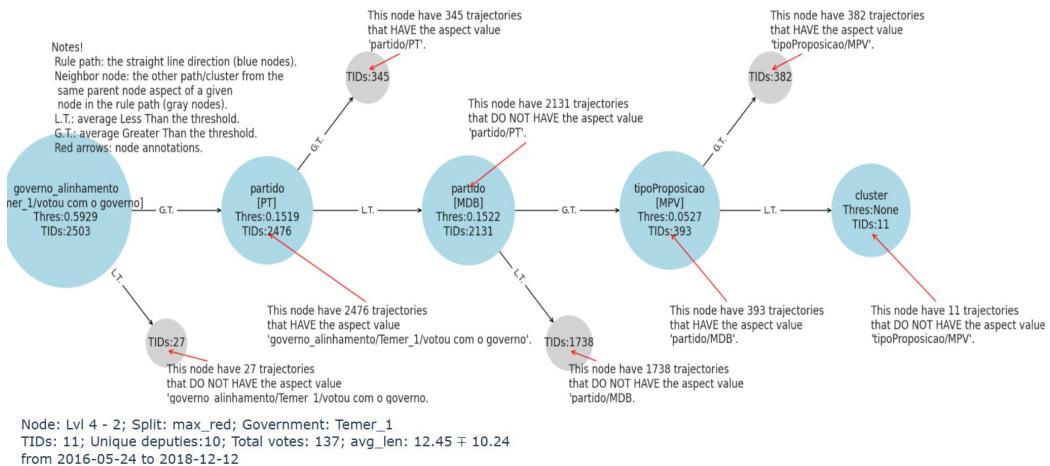


3.1.4. Temer government

- This is a cluster formed by deputies from MDB party that mainly voted in line with government (83.94%).**
- The deputies appear relatively infrequent at parliament in the specific period.**
- This group has, on avg, $22.67\% \pm 17.44\%$ of presence during the period with a coefficient of variance equal to **91.4%** (very high dispersion).**

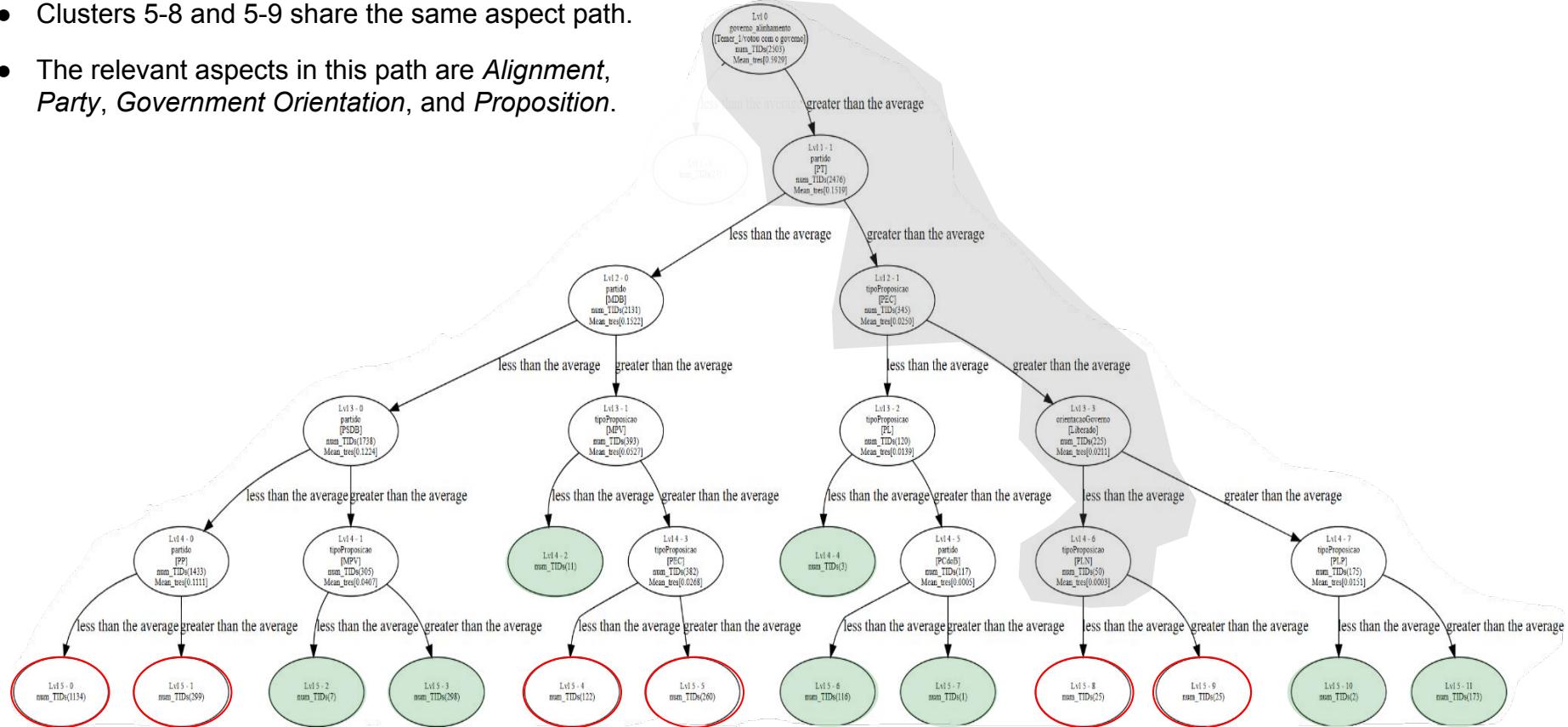
Opposition

Deputy	# TIDs dataset	# TIDs cluster	# votes cluster	Presence %	Date
Newton Cardoso	6	1	20	47.63	3/7/18 to 11/12/18
Gedeão Amorim	2	1	19	45.24	3/7/18 to 11/7/18
Rogério Mendonça	6	1	19	45.24	3/7/18 to 11/7/18
Dulce Miranda	6	1	21	50	3/7/18 to 12/12/18
Fábio Ramalho	6	1	3	7.14	11/7/18 to 11/12/18



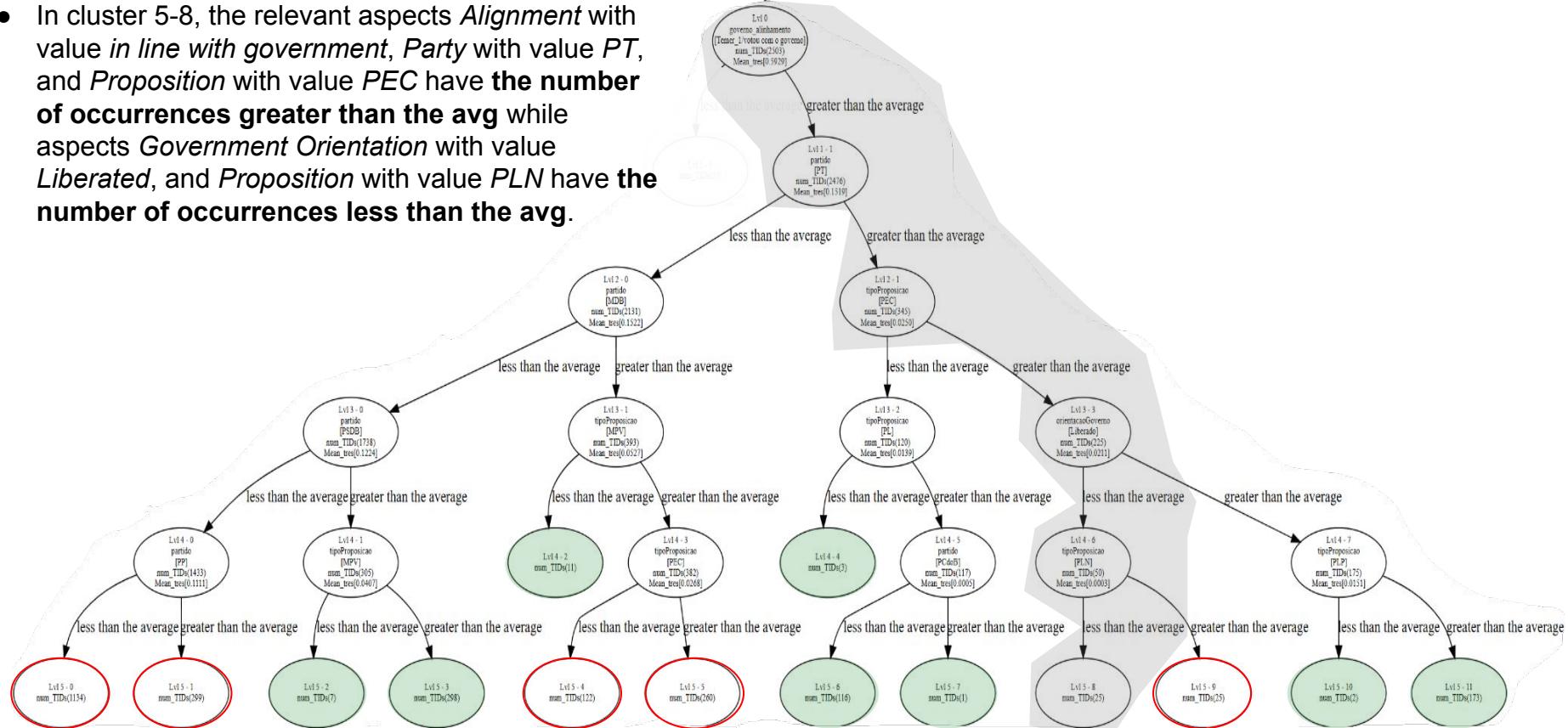
3.1.4. Temer government

- Clusters 5-8 and 5-9 share the same aspect path.
- The relevant aspects in this path are *Alignment*, *Party*, *Government Orientation*, and *Proposition*.



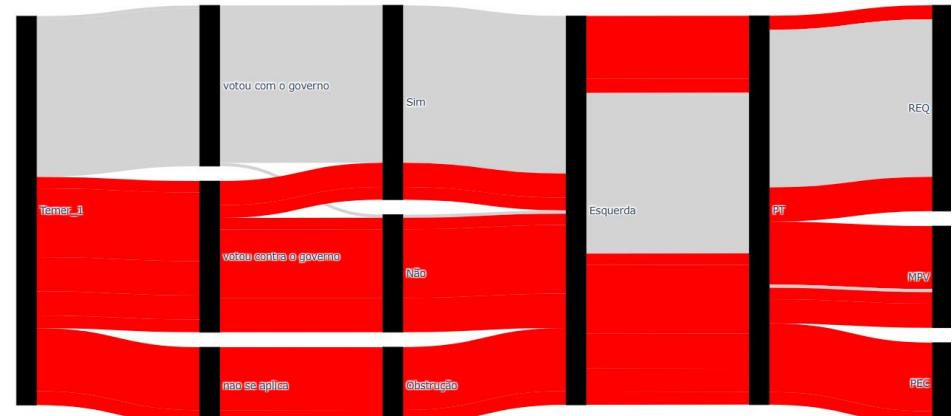
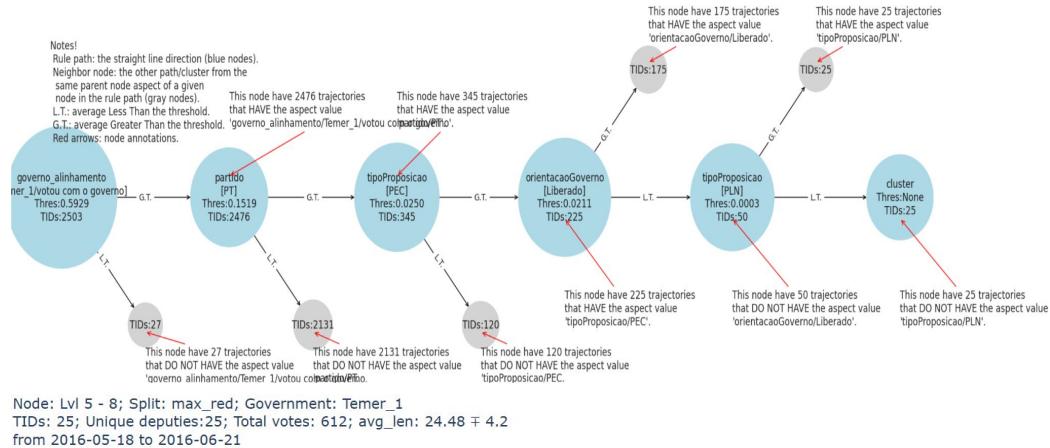
3.1.4. Temer government

- In cluster 5-8, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, and *Proposition* with value *PEC* have **the number of occurrences greater than the avg** while aspects *Government Orientation* with value *Liberated*, and *Proposition* with value *PLN* have **the number of occurrences less than the avg**.



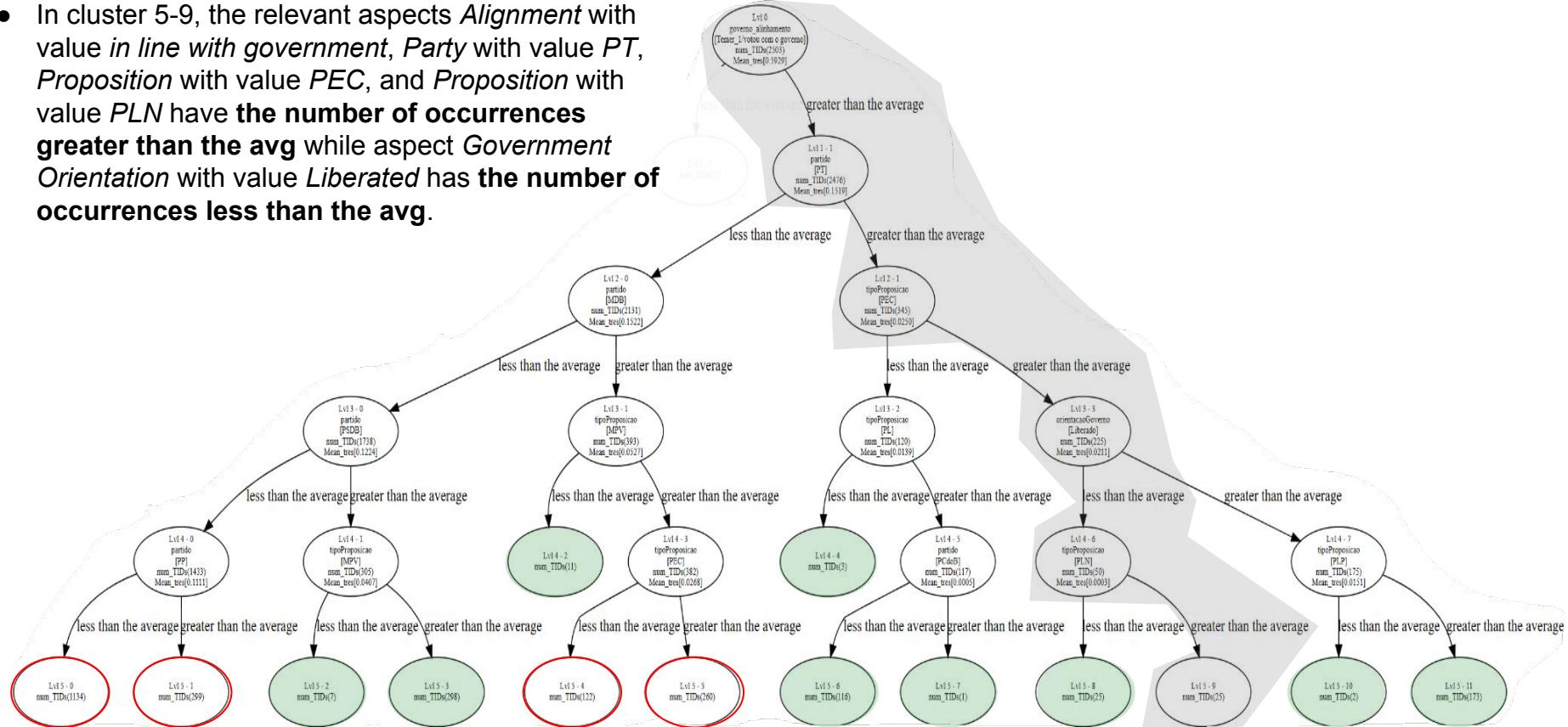
3.1.4. Temer government

- This is a cluster formed by deputies from PT party. Moreover, 58.66% (359) of the votes are against the government with focus on MPV and REC propositions.
- All deputies voted at least once against the government.
- The deputies in this cluster appear frequent at parliament in the specific period.
- All votes occurred in the 1º semester of 2016.
- This group has, on avg, **$72.57\% \pm 12.37\%$** of presence during the period with a coefficient of variance equal to **17.18%** (medium dispersion).



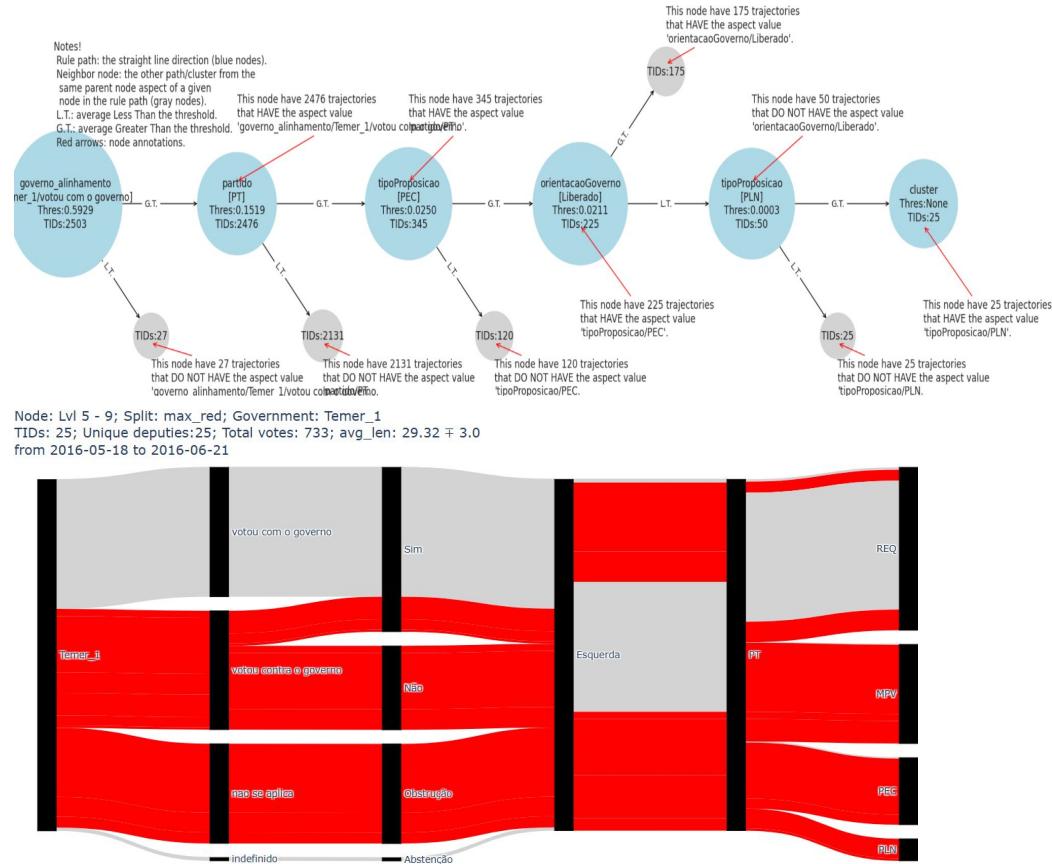
3.1.4. Temer government

- In cluster 5-9, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *PT*, *Proposition* with value *PEC*, and *Proposition* with value *PLN* have the number of occurrences greater than the avg while aspect *Government Orientation* with value *Liberated* has the number of occurrences less than the avg.



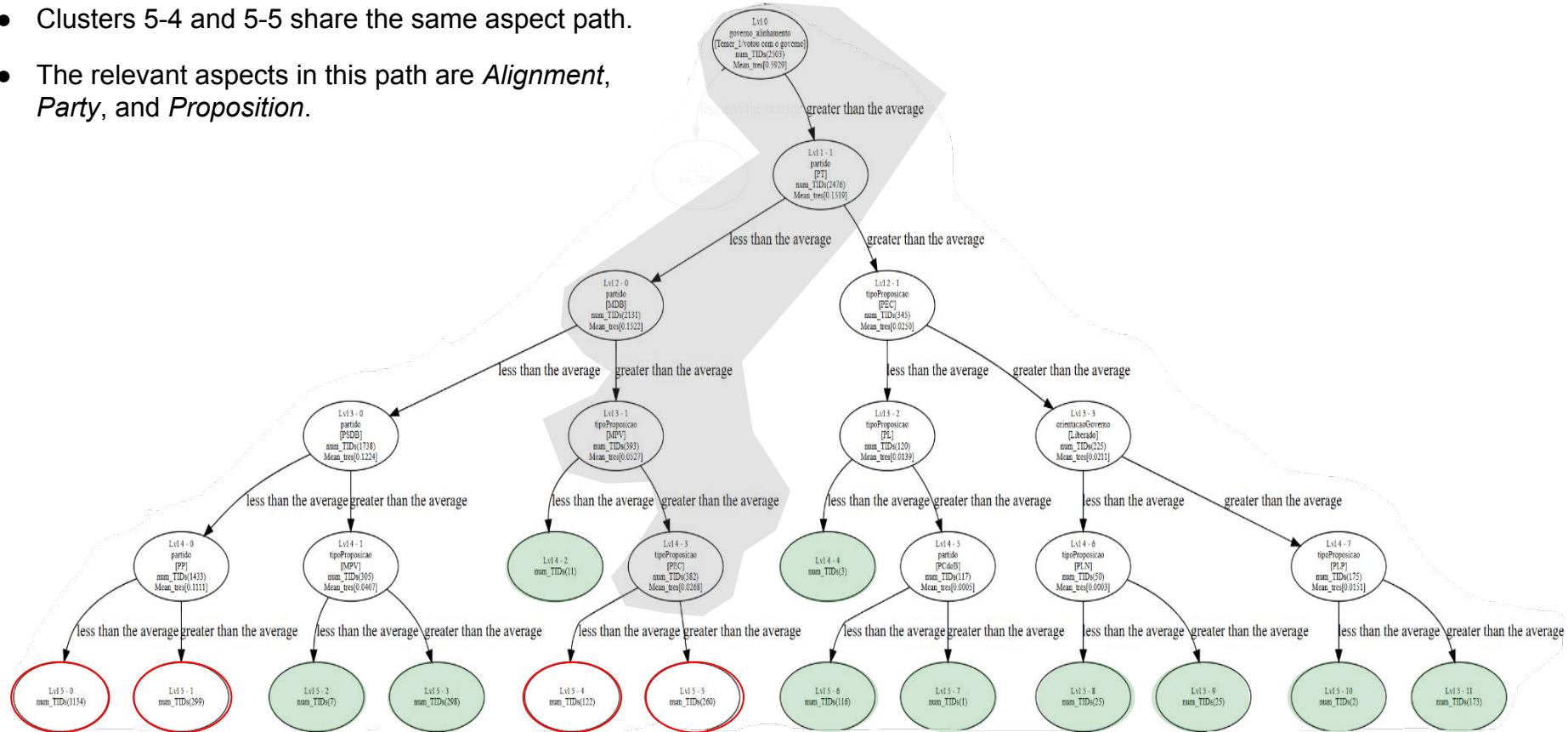
3.1.4. Temer government

- This is a cluster formed by deputies from PT party. Moreover, 62.21% (456) of the votes are against the government with focus on MPV, REC, and PLN propositions.
- All deputies voted at least once against the government.
- The deputies in this cluster appear frequent at parliament in the specific period.
- All votes occurred in the 1º semester of 2016.
- This group has, on avg, **$86.24\% \pm 8.81\%$** of presence during the period with a coefficient of variance equal to **10.22%** (medium dispersion).



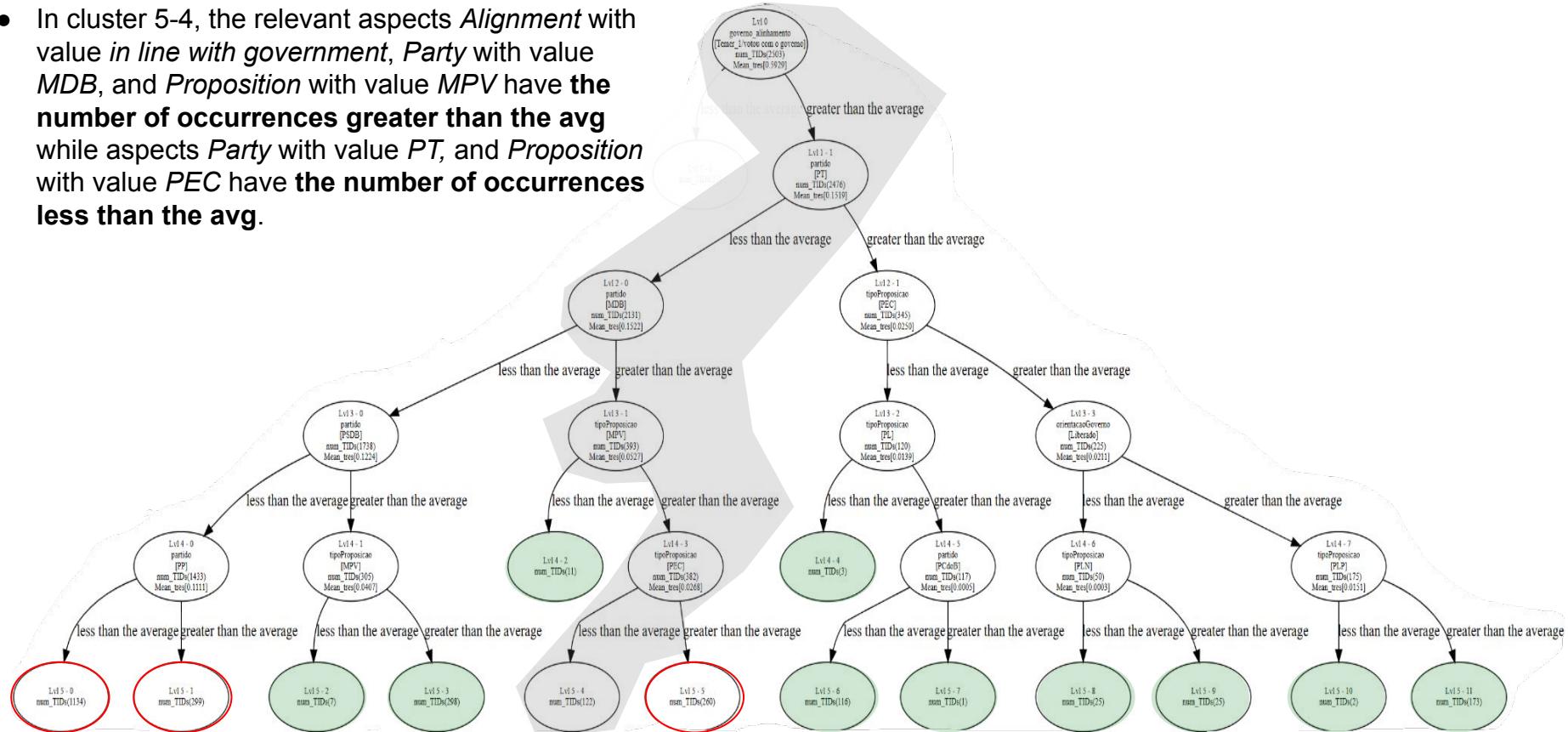
3.1.4. Temer government

- Clusters 5-4 and 5-5 share the same aspect path.
- The relevant aspects in this path are *Alignment*, *Party*, and *Proposition*.



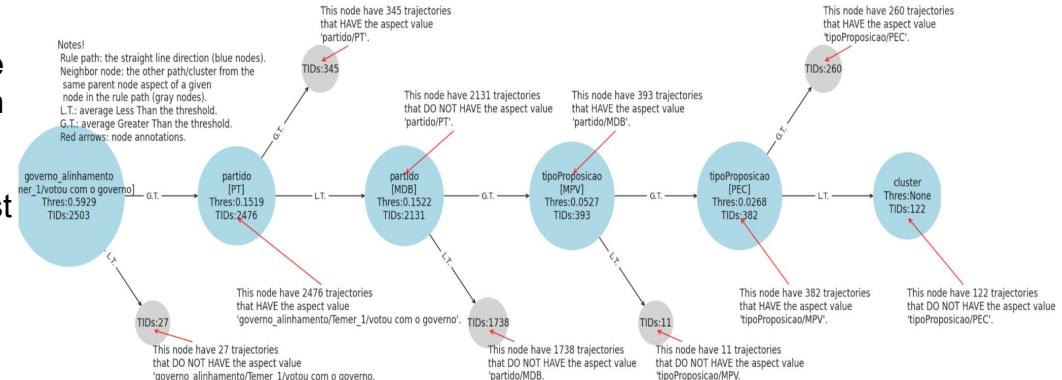
3.1.4. Temer government

- In cluster 5-4, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *MDB*, and *Proposition* with value *MPV* have the number of occurrences greater than the avg while aspects *Party* with value *PT*, and *Proposition* with value *PEC* have the number of occurrences less than the avg.

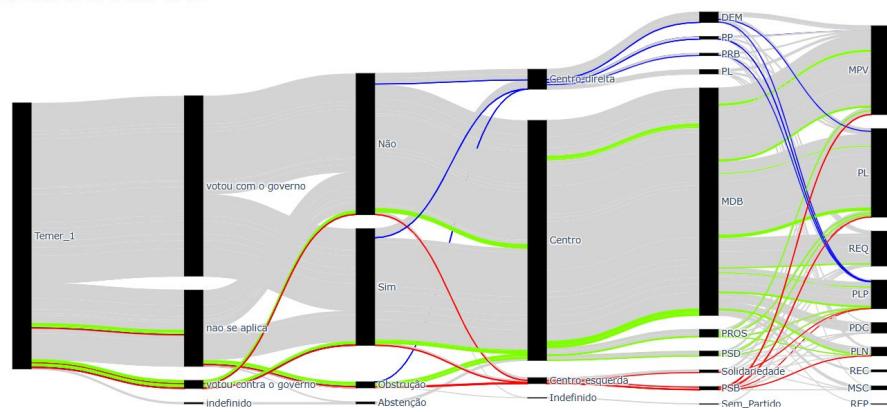


3.1.4. Temer government

- This is a cluster mainly formed by deputies from MDB party. Moreover, 94.63% (5854) of the votes are in line with government with focus on MPV and PL propositions.
- 91.89% (68) of deputies voted at least once against the government.
- The deputies in this cluster appear relatively frequent at parliament in the specific period.
- 98.96% (5793) of the supported votes occurred in 2018.
- This group has, on avg, **$62.24\% \pm 21.92\%$** of presence during the period with a coefficient of variance equal to **35.22%** (very high dispersion).

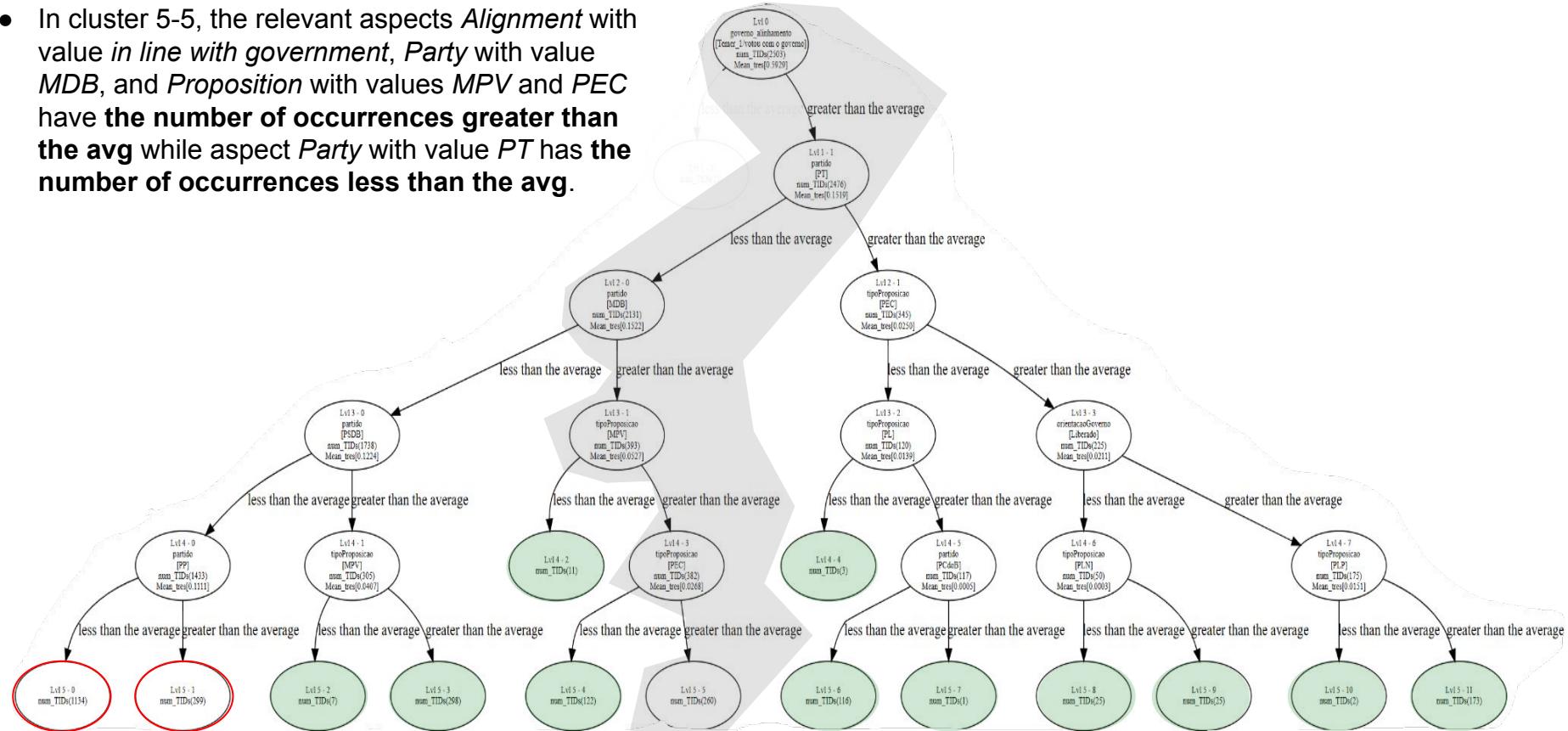


Node: Lvl 5 - 4; Split: max_red; Government: Temer_1
 TIDs: 122; Unique deputies:74; Total votes: 6186; avg_len: 50.7 ± 28.33
 from 2016-05-18 to 2018-12-12



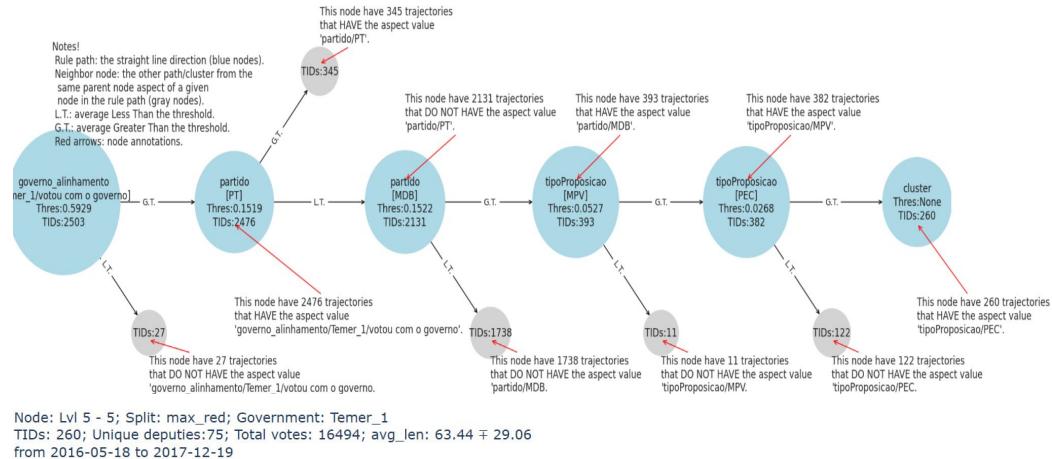
3.1.4. Temer government

- In cluster 5-5, the relevant aspects *Alignment* with value *in line with government*, *Party* with value *MDB*, and *Proposition* with values *MPV* and *PEC* have the number of occurrences greater than the avg while aspect *Party* with value *PT* has the number of occurrences less than the avg.



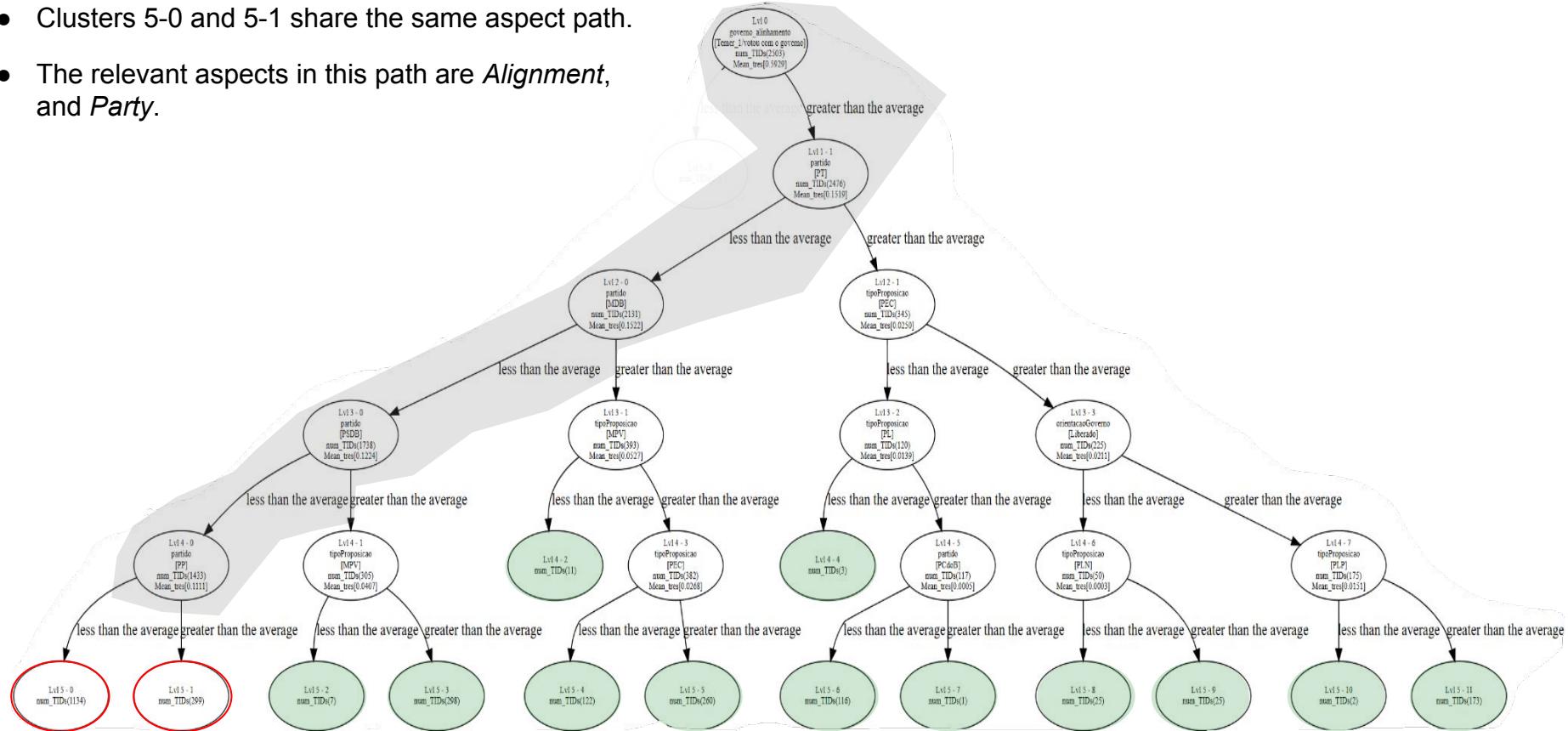
3.1.4. Temer government

- This is a cluster mainly formed by deputies from MDB party. Moreover, 96.05% (15843) of the votes are in line with government with focus on MPV and PEC propositions.
- 59.13% (9369) of the supported votes occurred in 2017.
- 85.33% (64) of deputies voted at least once against the government.
- The deputies in this cluster appear relatively frequent at parliament in the specific period.
- This group has, on avg, **$69.36\% \pm 18.61\%$** of presence during the period with a coefficient of variance equal to **26.83%** (high dispersion).



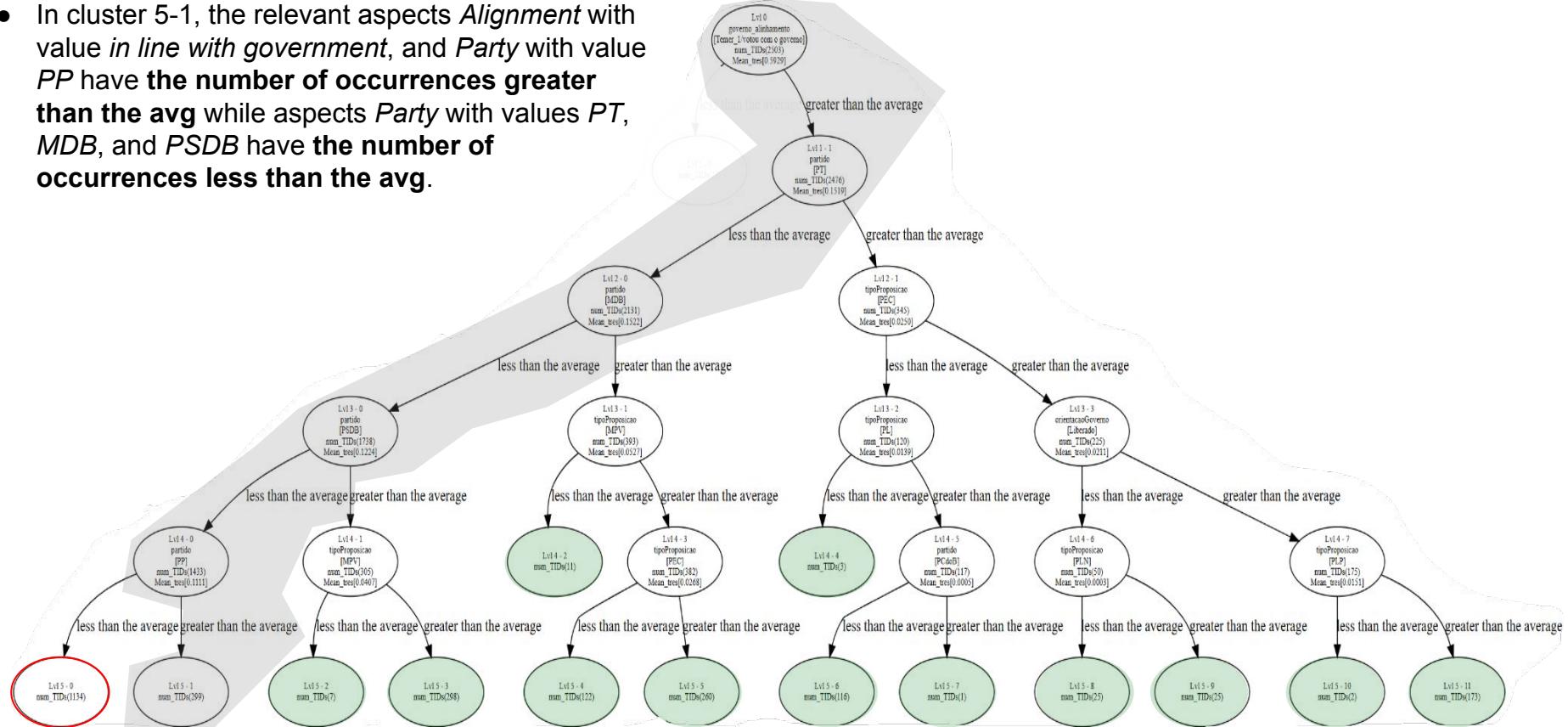
3.1.4. Temer government

- Clusters 5-0 and 5-1 share the same aspect path.
- The relevant aspects in this path are *Alignment*, and *Party*.



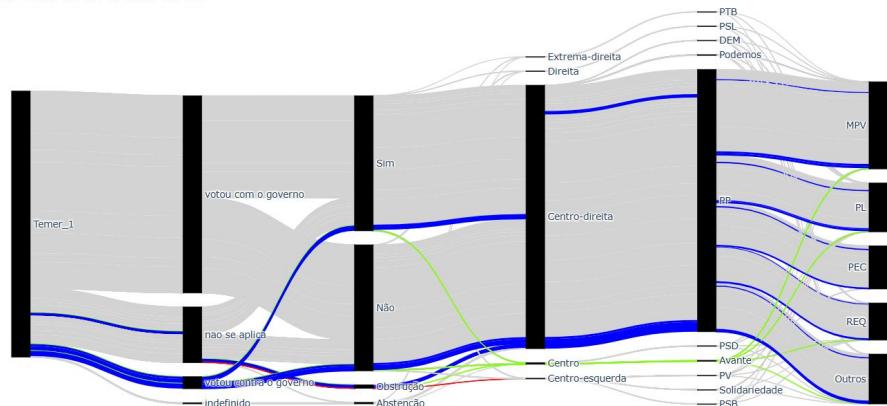
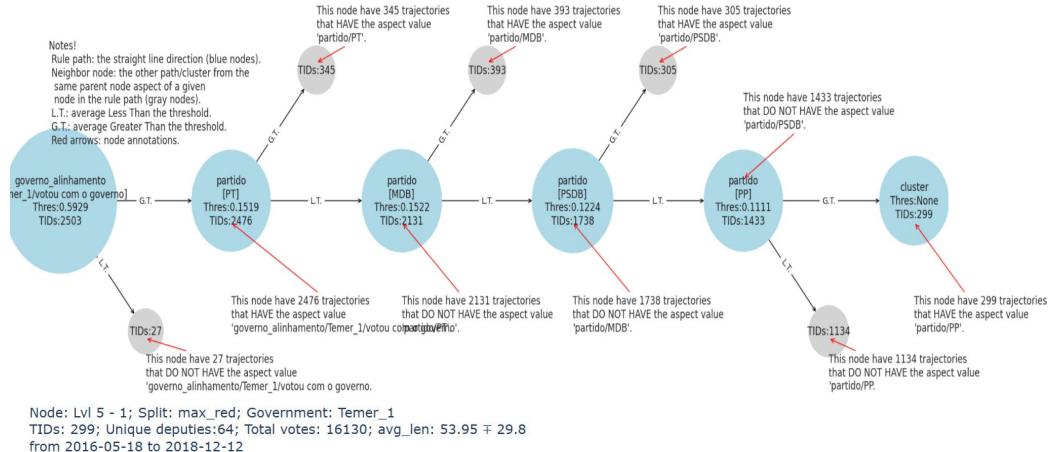
3.1.4. Temer government

- In cluster 5-1, the relevant aspects *Alignment* with value *in line with government*, and *Party* with value *PP* have the number of occurrences greater than the avg while aspects *Party* with values *PT*, *MDB*, and *PSDB* have the number of occurrences less than the avg.



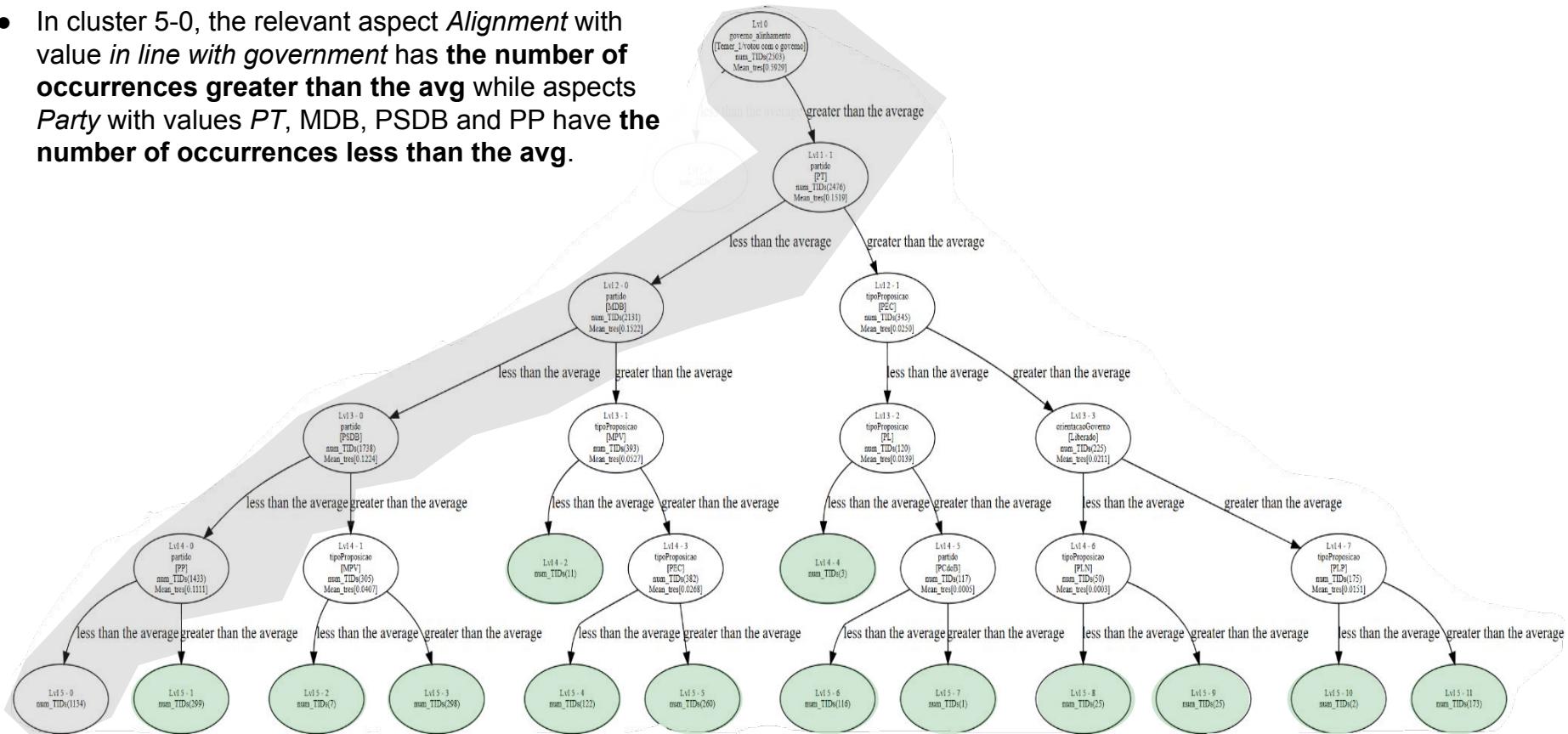
3.1.4. Temer government

- This is a cluster mainly formed by deputies from PP party. Moreover, 94.14% (15185) of the votes are in line with government with focus on MPV, PL, PEC and REQ propositions.
- The majority of votes occurred in 2017. Regarding the supported votes, it was **43.7%** (6540) while for the opposition it was **50.27%** (475).
- 96.87%** (62) of deputies voted at least once against the government.
- The deputies in this cluster **appear relatively frequent at parliament** in the specific period.
- This group has, on avg, **62.37% \pm 22.33%** of presence during the period with a coefficient of variance equal to **35.8%** (very high dispersion).



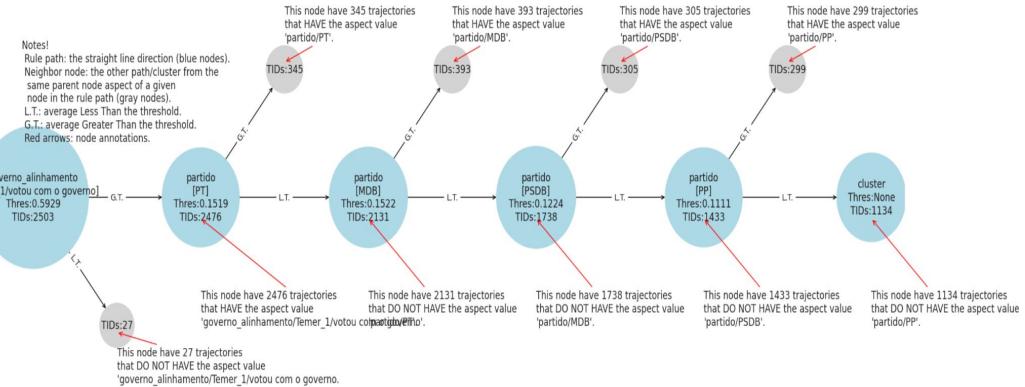
3.1.4. Temer government

- In cluster 5-0, the relevant aspect *Alignment* with value *in line with government* has the **number of occurrences greater than the avg** while aspects *Party* with values *PT*, *MDB*, *PSDB* and *PP* have **the number of occurrences less than the avg**.

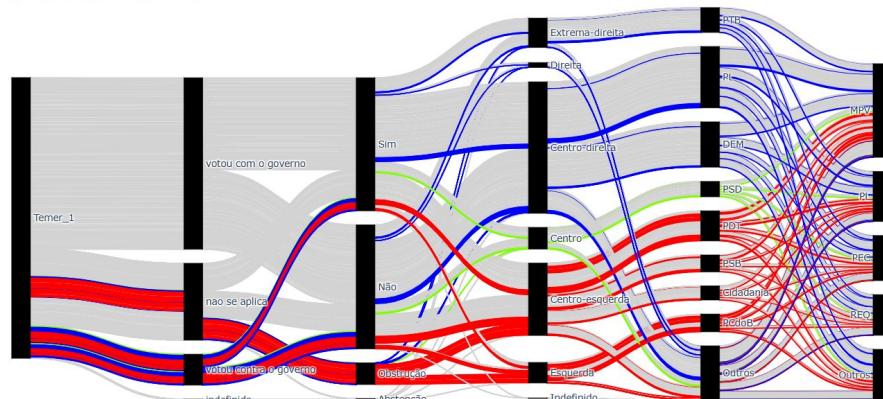


3.1.4. Temer government

- This is a cluster that the PT, MDB, PSDB, and PP parties are not present. Moreover, 81.26% (52238) of the votes are in line with government with focus on MPV proposition.**
- The majority of votes occurred in 2017. Regarding the supported votes, it was **44.43%** (23207) while for the opposition it was **47.6%** (5734).
- 91.49%** (301) of deputies voted at least once against the government.
- The deputies in this cluster **appear relatively frequent at parliament** in the specific period.
- This group has, on avg, **65.56% \pm 32.76%** of presence during the period with a coefficient of variance equal to **32.76%** (very high dispersion).



Node: Lvl 5 - 0; Split: max_red; Government: Temer_1
 TIDs: 1134; Unique deputies:329; Total votes: 64284; avg_len: 56.69 ± 30.73
 from 2016-05-18 to 2018-12-12



Analyzing Parliamentary Voting Dynamics Using Multiple Aspects Trajectory Clustering Approach

Yuri Santos, Tarlis Portela, Jonathan Silva and
Jônata Carvalho

Basometro:
insights

Thank you for your attention.

Q & A ?

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