

# BEHAVIORAL DATA ANALYSIS AND ITS APPLICATIONS FOR COMPUTATIONAL JOURNALISM





## Fact Checking

Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**



**Claim:** There is no national position when it comes to votes in the European S&D political group



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Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**



**Claim:** There is no national position when it comes to votes in the European S&D political group



## Discovering Exceptional Pairwise Behaviors

①

**Contextualize:** e.g. Is there contexts in which we observe disagreement between national political group in S&D





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Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**



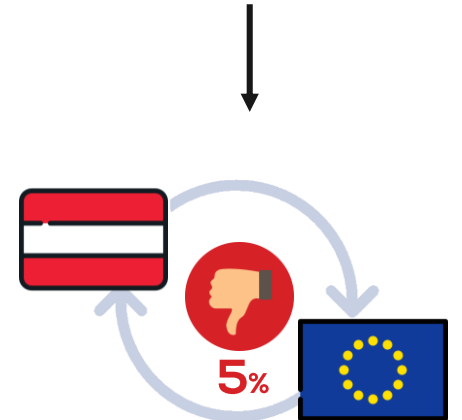
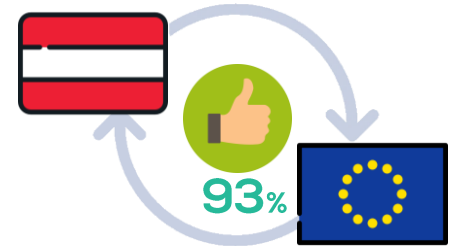
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## Discovering Exceptional Pairwise Behaviors

- 1 **Contextualize:** e.g. Is there contexts in which we observe disagreement between national political group in S&D

*Overall mutual agreement observed between Austria and EU in S&D Group*



Austria **vs** All in '7.30.20 Action to combat terrorism' **and** '7.30.30 Action to combat crime' **votes sessions**



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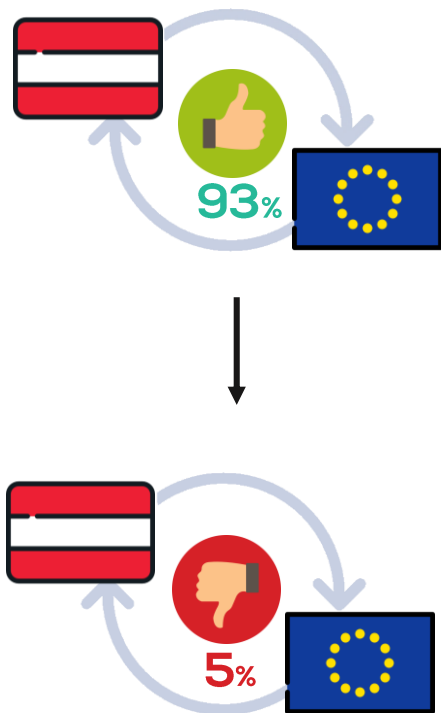
### Summary of patterns found

Show 20 entries

Search:

Patterns	Groups	Context
<div><div></div><div>7%</div></div> <div>Normal agreement: 98%</div> <div>Context agreement: 7%</div> <div>Change: -93%</div>	<ul style="list-style-type: none"><li>Germany</li><li>*</li></ul>	['3.30.03 Telecommunications, data transmission, telephone']
<div><div></div><div>5%</div></div> <div>Normal agreement: 93%</div> <div>Context agreement: 5%</div> <div>Change: -95%</div>	<ul style="list-style-type: none"><li>Austria</li><li>*</li></ul>	['7.30.20 Action to combat terrorism', '7.30.30 Action to combat crime']
<div><div></div><div>5%</div></div> <div>Normal agreement: 93%</div> <div>Context agreement: 5%</div> <div>Change: -95%</div>	<ul style="list-style-type: none"><li>Austria</li><li>*</li></ul>	['3 COMMUNITY POLICIES', '7.10.04 External borders crossing and controls, visas']
<div><div></div><div>7%</div></div> <div>Normal agreement: 93%</div> <div>Context agreement: 7%</div> <div>Change: -92%</div>	<ul style="list-style-type: none"><li>Austria</li><li>*</li></ul>	['3.30.03 Telecommunications, data transmission, telephone']
<div><div></div><div>7%</div></div> <div>Normal agreement: 94%</div> <div>Context agreement: 7%</div> <div>Change: -93%</div>	<ul style="list-style-type: none"><li>Belgium</li><li>*</li></ul>	['3.30.03 Telecommunications, data transmission, telephone']
<div><div></div><div>7%</div></div> <div>Normal agreement: 93%</div> <div>Context agreement: 7%</div> <div>Change: -92%</div>	<ul style="list-style-type: none"><li>Austria</li><li>*</li></ul>	['2.40 Free movement of services, freedom to provide', '3.30.25 International information networks and society, internet', '4.60.06 Consumers' economic and legal interests']

Overall mutual agreement observed between Austria and EU in S&D Group



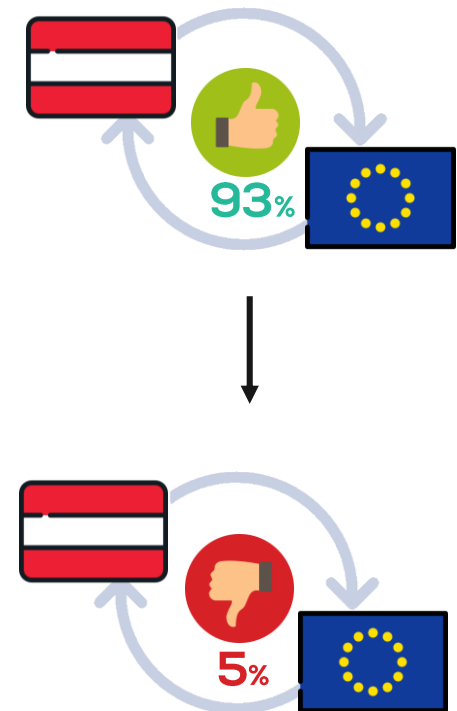
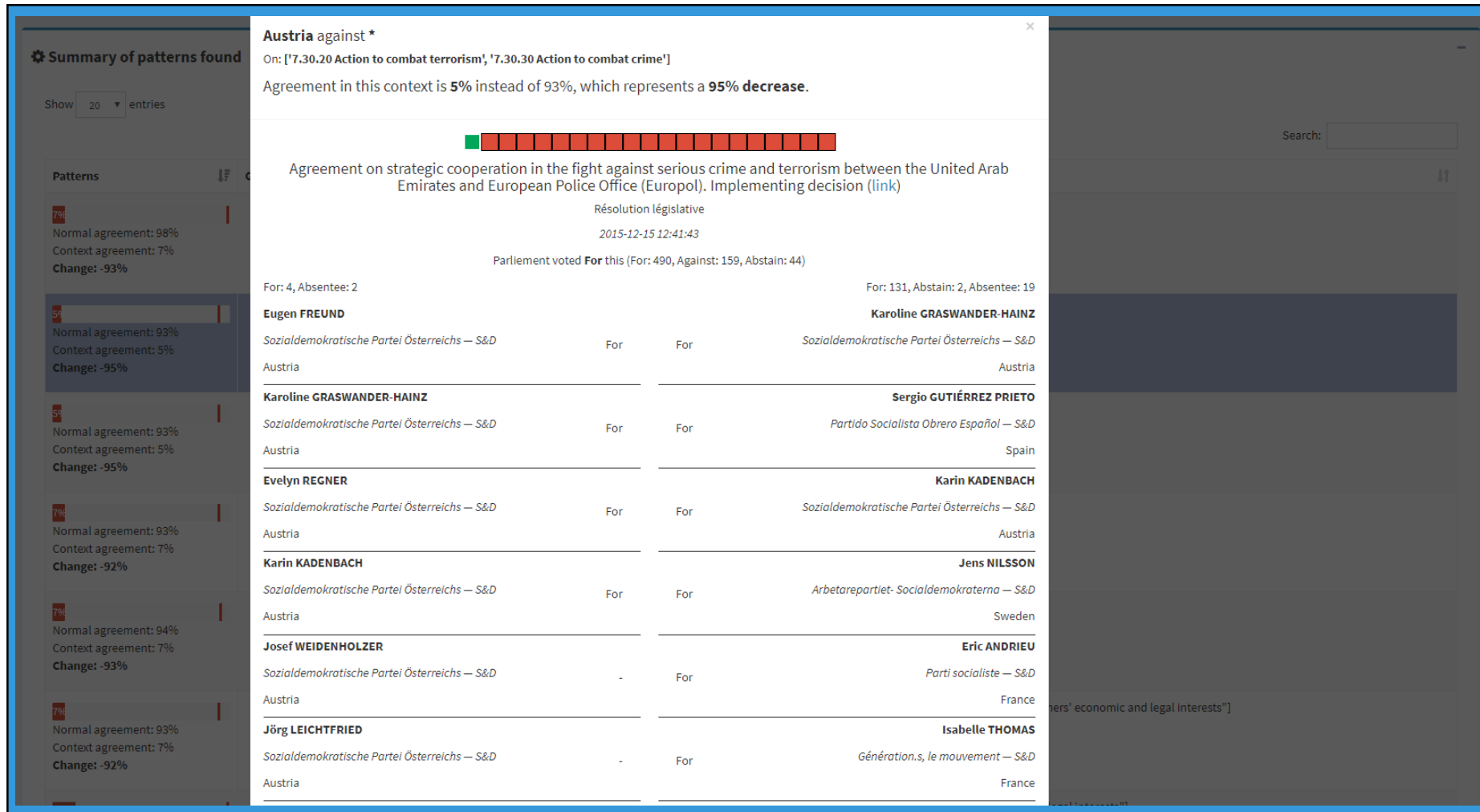
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## Fact Checking

Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**

Overall mutual agreement observed between Austria and EU in S&D Group



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## Fact Checking

Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**

Overall mutual agreement observed between Austria and EU in S&D Group

Summary of patterns found

Show 20 entries

Patterns

Normal agreement: 98%  
Context agreement: 7%  
Change: -93%

Normal agreement: 93%  
Context agreement: 5%  
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Normal agreement: 93%  
Context agreement: 5%  
Change: -95%

Normal agreement: 93%  
Context agreement: 7%  
Change: -92%

Normal agreement: 94%  
Context agreement: 7%  
Change: -93%

Normal agreement: 93%  
Context agreement: 7%  
Change: -92%

Austria against \*

On: ['7.30.20 Action to combat terrorism', '7.30.30 Action to combat crime']

Agreement in this context is 5% instead of 93%, which represents a 95% decrease.

Use of passenger name record (PNR) data for the prevention, detection, investigation and prosecution of terrorist offences and serious crime (link)

Résolution législative

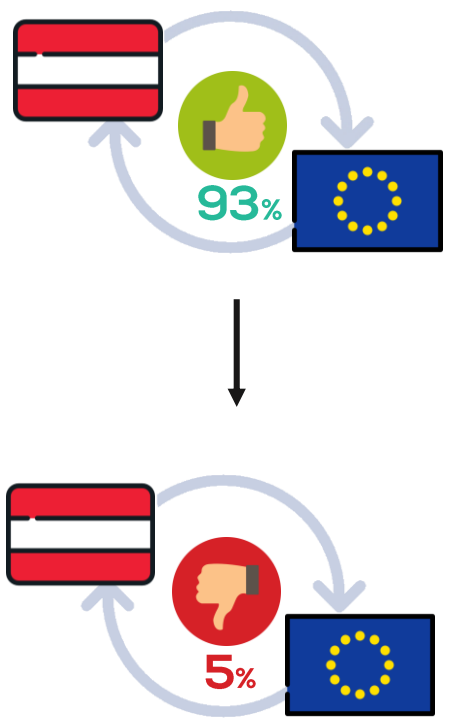
2016-04-14 12:10:52

Parliament voted For this (For: 461, Against: 179, Abstain: 9)

Against: 3, Abstain: 1, Absentee: 2

Against: 22, For: 110, Absentee: 18, Abstain: 2

<b>Karoline GRASWANDER-HAINZ</b>			<b>Karoline GRASWANDER-HAINZ</b>
Sozialdemokratische Partei Österreichs — S&D	Against	Against	Sozialdemokratische Partei Österreichs — S&D
Austria			Austria
<b>Evelyn REGNER</b>			<b>Ramón JÁUREGUI ATONDO</b>
Sozialdemokratische Partei Österreichs — S&D	Against	For	Partido Socialista Obrero Español — S&D
Austria			Spain
<b>Karin KADENBACH</b>			<b>Eider GARDIAZABAL RUBIAL</b>
Sozialdemokratische Partei Österreichs — S&D	Against	For	Partido Socialista Obrero Español — S&D
Austria			Spain
<b>Eugen FREUND</b>			<b>Jens NILSSON</b>
Sozialdemokratische Partei Österreichs — S&D	Abstain	For	Arbetarepartiet- Socialdemokraterna — S&D
Austria			Sweden
<b>Josef WEIDENHOLZER</b>			<b>Eric ANDRIEU</b>
Sozialdemokratische Partei Österreichs — S&D	-	For	Parti socialiste — S&D
Austria			France
<b>Jörg LEICHTFRIED</b>			<b>Isabelle THOMAS</b>
Sozialdemokratische Partei Österreichs — S&D	-	For	Génération.s, le mouvement — S&D
Austria			France
			<b>Marlene MIZZI</b>



Austria **vs** All in '7.30.20 Action to combat terrorism' **and** '7.30.30 Action to combat crime' **votes sessions**





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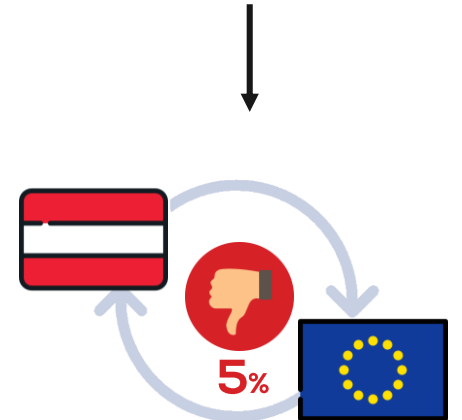
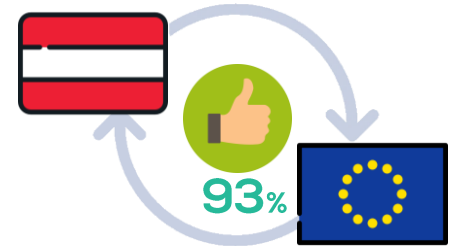
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## Discovering Exceptional Pairwise Behaviors

- ① **Contextualize:** e.g. Is there contexts in which we observe disagreement between national political group in S&D

*Overall mutual agreement observed between Austria and EU in S&D Group*



Austria **vs** All in '7.30.20 Action to combat terrorism' **and** '7.30.30 Action to combat crime' **votes sessions**



## Lead Finding

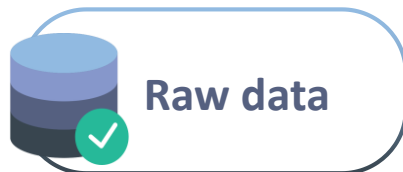
Finding **interesting information nuggets** from **raw data** that lead to **further investigation** and/or **news stories** around them.



Assert the quality of a behavioral claim by its contextualization with the available data



**Claim:** There is no national position when it comes to votes in the European S&D political group



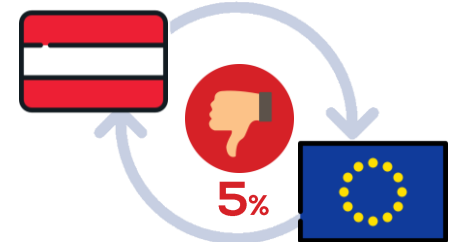
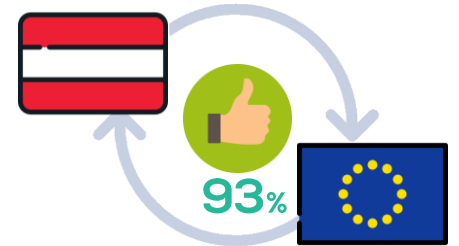
**Raw data :** European parliament voting dataset



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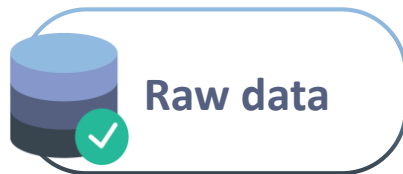
Finding **interesting information nuggets** from **raw data** that lead to **further investigation** and/or **news stories** around them.



Assert the quality of a behavioral claim by its contextualization with the available data



**Claim:** There is no national position when it comes to votes in the European S&D political group



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## Discovering Exceptional Pairwise Behaviors

- ① **Contextualize:** e.g. Is there contexts in which we observe disagreement between national political group in S&D
- ② **News lead :** e.g. investigate for controversial topics between countries



## Lead Finding

Finding **interesting information nuggets** from **raw data** that lead to **further investigation** and/or **news stories** around them.

Overall mutual agreement observed between countries in the 8<sup>th</sup> EU Parliament

Summary of patterns found

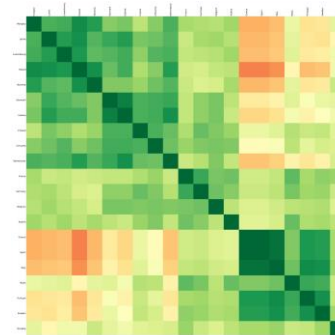
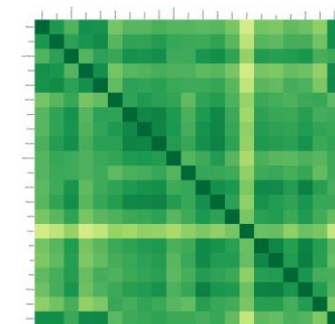
Show  entries

Search:

Patterns	Groups	Context
<div>37%</div> <div>Normal agreement: 85%</div> <div>Context agreement: 37%</div> <div>Change: -56%</div>	<ul style="list-style-type: none"> <li>[1958.0, 1995.0]</li> <li>[1995.0, 2004.0]</li> </ul>	['4.10.07 The elderly']
<div>27%</div> <div>Normal agreement: 75%</div> <div>Context agreement: 27%</div> <div>Change: -64%</div>	<ul style="list-style-type: none"> <li>[1981.0, 1981.0]</li> <li>[1958.0, 2004.0]</li> </ul>	['6.10.02 Common security and defence policy; WEU, NATO', '6.10.04 Third-country political situation, local and regional conflicts', '6.10.05 Peace preservation, humanitarian and rescue tasks, crisis management']
<div>36%</div> <div>Normal agreement: 85%</div> <div>Context agreement: 36%</div> <div>Change: -58%</div>	<ul style="list-style-type: none"> <li>[1973.0, 1981.0]</li> <li>[1981.0, 1981.0]</li> </ul>	['2.50.03 Securities and financial markets, stock exchange, CIUTS, investments', '2.50.08 Financial services, financial reporting and auditing', '4.60.06 Consumers' economic and legal interests']
<div>26%</div> <div>Normal agreement: 75%</div> <div>Context agreement: 26%</div> <div>Change: -65%</div>	<ul style="list-style-type: none"> <li>[1981.0, 1981.0]</li> <li>[1958.0, 2004.0]</li> </ul>	['3 COMMUNITY POLICIES', '7.10.04 External borders crossing and controls, visas']
<div>38%</div> <div>Normal agreement: 87%</div> <div>Context agreement: 38%</div> <div>Change: -56%</div>	<ul style="list-style-type: none"> <li>[1973.0, 1973.0]</li> <li>[1973.0, 1981.0]</li> </ul>	['3.10.08 Animal health requirements, veterinary legislation and pharmacy', '3.70 Environmental policy']

Showing 31 to 35 of 53 entries

Previous 1 ... 6 **7** 8 ... 11 Next



others visualization propositions are welcome :)

< EU\_MEMBER\_SINCE ∈ [1958, 1995];  
EU\_MEMBER\_SINCE ∈ [1995, 2004];  
Themes ∋ 4.10.07 'The elderly' >



## Lead Finding

Finding interesting information nuggets from raw data that lead to further investigation and/or news stories around them.

Overall mutual agreement observed between countries in the 8<sup>th</sup> EU Parliament

Summary of patterns found

Show 5 entries

Patterns

37%

Normal agreement: 85%

Context agreement: 37%

Change: -56%

27%

Normal agreement: 75%

Context agreement: 27%

Change: -64%

36%

Normal agreement: 85%

Context agreement: 36%

Change: -58%

26%

Normal agreement: 75%

Context agreement: 26%

Change: -65%

38%

Normal agreement: 87%

Context agreement: 38%

Change: -56%

Showing 31 to 35 of 53 entries

[1958.0, 1995.0] against [1995.0, 2004.0]

On: ['4.10.07 The elderly']

Agreement in this context is 37% instead of 85%, which represents a 56% decrease.

Accessibility requirements for products and services (link)

Am 339

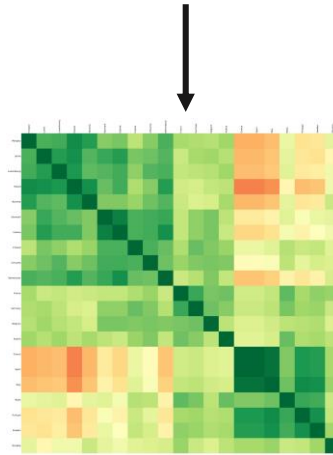
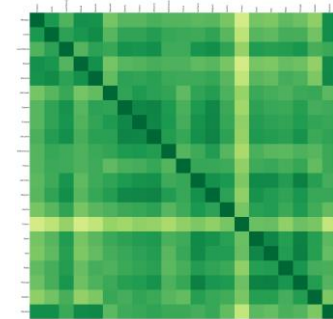
2017-09-14 11:42:27

Parliament voted For this (For: 329, Against: 293, Abstain: 8)

For: 249, Absentee: 118, Against: 141, Abstain: 4

Absentee: 49, Against: 95, For: 52, Abstain: 3

<b>João PIMENTA LOPES</b>				<b>Thomas WAITZ</b>
Partido Comunista Português — GUE/NGL	For	-		Die Grünen - Die Grüne Alternative — Verts/ALE
Portugal				Austria
<b>Constance LE GRIP</b>				<b>Ildikó GÁLL-PELCZ</b>
Les Républicains — PPE	-			Fidesz-Magyar Polgári Szövetség-Kereszténydemokrata Néppárt — PPE
France				Hungary
<b>Auke ZIJLSTRA</b>				<b>Heinz K. BECKER</b>
Partij voor de Vrijheid — NI	Against			Österreichische Volkspartei — PPE
Netherlands		Against		Austria
<b>Terry REINTKE</b>				<b>Sampo TERHO</b>
Bündnis 90/Die Grünen — Verts/ALE	For			Perussuomalaiset — ECR
Germany		-		Finland
<b>Sergio GUTIÉRREZ PRIETO</b>				<b>Josef WEIDENHOLZER</b>
Partido Socialista Obrero Español — S&D	-			Sozialdemokratische Partei Österreichs — S&D
Spain		For		Austria
<b>Reimer BÖGE</b>				<b>Jens NILSSON</b>
Christlich Demokratische Union Deutschlands — PPE	-			Arbetarepartiet- Socialdemokraterna — S&D
Germany		For		



others visualization propositions are welcome :)

< EU\_MEMBER\_SINCE ∈ [1958, 1995];  
EU\_MEMBER\_SINCE ∈ [1995, 2004];  
Themes ∋ 4.10.07 'The elderly' >





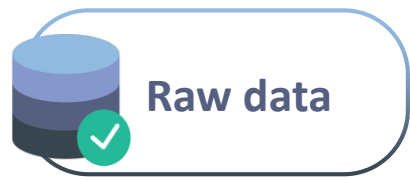
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Finding **interesting information nuggets** from **raw data** that lead to **further investigation** and/or **news stories** around them.

**Fact Checking** | Assert the quality of a behavioral claim by its contextualization with the available data



**Claim:** There is no national position when it comes to votes in the European S&D political group



**Raw data**

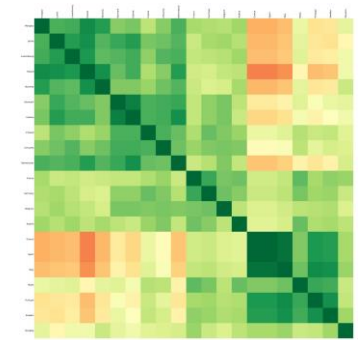
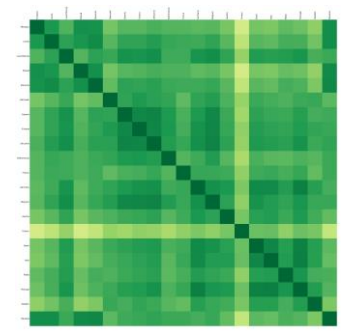
**Raw data :** European parliament voting dataset



## Discovering Exceptional Pairwise Behaviors

- ① **Contextualize:** e.g. Is there contexts in which we observe disagreement between national political group in S&D
- ② **News lead :** e.g. investigate for controversial topics between countries

Overall mutual agreement observed between countries in the 8<sup>th</sup> EU Parliament



others visualization propositions are welcome :)

< EU\_MEMBER\_SINCE ∈ [1958, 1995];  
EU\_MEMBER\_SINCE ∈ [1995, 2004];  
Themes ∋ 4.10.07 'The elderly '>

## Mistrz i wicemistrz Śląska



## BĘDZIEMY GŁOSOWAĆ W 57 OBWOŁACH WYBORCZYCH

Przygotowania do zbliżających się wyborów do Sejmu i rad narodowych już się rozbiegły. Prezydium MRN w Gliwicach powołało Zespół Wyborczy, którego członkami są: Zarząd w kilku osobach – organizacyjnej sprawy, lokalnej i kandydatury, prawniczą prawną przy pomocy do kandydatury w kraju.

Wieloletni z naszego miasta radnymi są: Władysław Władysławski z sąsiednich powiatów. Wtedy się zarumienia i... lepiej spiesz w bieżącym roku. W. B.

DZIS



- Co dzisiaj się odpowiedział w...
- Nowości w wywołanych...
- Akcja „Z” – czyli... zapomniał...
- Wieloletni będzie gromada w...

## Telewizja zdobywa wielą głośność

Wieloletni Władysław Władysławski, który jest w telewizji, w tym roku zdobył wielą głośność. Jeden telewizor przypada więc na 40 osób.

Jeden z największych w kraju

## Magazyn skór surowych w Toszku

W ubiegłym tygodniu odbył się w Toszku odbiór techniczny budynku magazynu skór surowych. Obiekt ten wzniesiony przez Glinickie Przedsiębiorstwo Drobniactwa Przemysłowego Centrali Surowców Włóczych i Skórzanych w Bydgoszczy będzie jednym z największych w kraju magazynów skór. Wany systemem przemysłowym z dużych blach stalowych.

W ubiegłym tygodniu odbył się w Toszku odbiór techniczny budynku magazynu skór surowych. Obiekt ten wzniesiony przez Glinickie Przedsiębiorstwo Drobniactwa Przemysłowego Centrali Surowców Włóczych i Skórzanych w Bydgoszczy będzie jednym z największych w kraju magazynów skór. Wany systemem przemysłowym z dużych blach stalowych.

Wieloletni Władysław Władysławski, który jest w telewizji, w tym roku zdobył wielą głośność. Jeden telewizor przypada więc na 40 osób.

LET'S

DEMONSTRATION

PRACTICE



**Behaviors Comparison Claims** covers any statement that report a comparison of behavior between two observed individuals/groups/populations ...



*Claim 1*

German and French S&D representatives shares the same political line in most of the subjects discussed in the European union.

*Claim 2*

The majority of the French far-right party (Front National) deputies vote always the same as their political leader Marine Le Pen (MLP).

*Claim 3*

There is no national position when it comes to votes of European Political Groups (Greens, S&D ...).

*Claim 4*

The far-right French national party is often in disagreement with the far-left Front de Gauche party in the European Parliament.

*Lead 1*

What are the controversial topics between countries (French national Parties ...) in the European parliament



Claim 4

The far-right French national party is often in disagreement with the far-left Front de Gauche party in the European Parliament.

### Summary of patterns found

Show  entries

Search:

Patterns	Groups	Context
<div><div></div>100%</div> <div>Normal agreement: 43%</div> <div>Context agreement: 100%</div> <div>Change: 133%</div>	<ul style="list-style-type: none"><li>Front national</li><li>Front de Gauche</li></ul>	['6 External relations of the Union', '8.70 Budget of the Union']
<div><div></div>90%</div> <div>Normal agreement: 43%</div> <div>Context agreement: 90%</div> <div>Change: 109%</div>	<ul style="list-style-type: none"><li>Front national</li><li>Front de Gauche</li></ul>	['4.70 Regional policy', '8 State and evolution of the Union']
<div><div></div>89%</div> <div>Normal agreement: 43%</div> <div>Context agreement: 89%</div> <div>Change: 107%</div>	<ul style="list-style-type: none"><li>Front national</li><li>Front de Gauche</li></ul>	['3.10.01.02 Rural development, European Agricultural Fund for Rural Development (EAFRD)']
<div><div></div>88%</div> <div>Normal agreement: 43%</div> <div>Context agreement: 88%</div> <div>Change: 105%</div>	<ul style="list-style-type: none"><li>Front national</li><li>Front de Gauche</li></ul>	['3.70.11 Natural disasters, Solidarity Fund']
<div><div></div>88%</div> <div>Normal agreement: 43%</div> <div>Context agreement: 88%</div> <div>Change: 105%</div>	<ul style="list-style-type: none"><li>Front national</li><li>Front de Gauche</li></ul>	['3.70.04 Water control and management, pollution of waterways, water pollution']

Showing 1 to 5 of 33 entries

Previous

1

2

3

4

5

6

7

Next



## Fact Checking

### Claim 4

The far-right French national party is often in disagreement with the far-left Front de Gauche party in the European Parliament.

Summary of patterns found

Show 5 entries

Patterns

100%

Normal agreement: 43%

Context agreement: 100%

Change: 133%

90%

Normal agreement: 43%

Context agreement: 90%

Change: 109%

89%

Normal agreement: 43%

Context agreement: 89%

Change: 107%

88%

Normal agreement: 43%

Context agreement: 88%

Change: 105%

88%

Normal agreement: 43%

Context agreement: 88%

Change: 105%

Showing 1 to 5 of 33 entries

Front national against Front de Gauche

On: ['3.10.01.02 Rural development, European Agricultural Fund for Rural Development (EAFRD)']

Agreement in this context is 89% instead of 43%, which represents a 107% increase.

How can the CAP improve job creation in rural areas? (link)

§ 2/1

2016-10-27 12:31:45

Parlement voted For this (For: 498, Against: 83, Abstain: 35)

For: 3, Absentee: 2	For: 3, Absentee: 1
<b>Edouard FERRAND</b>	<b>Patrick LE HYARIC</b>
Front national — NI	Front de Gauche — GUE/NGL
France	France
<b>Marine LE PEN</b>	<b>Jean-Luc MÉLENCHON</b>
Front national — NI	Front de Gauche — GUE/NGL
France	France
<b>Louis ALIOT</b>	<b>Marie-Christine VERGIAT</b>
Front national — NI	Front de Gauche — GUE/NGL
France	France
<b>Jean-Marie LE PEN</b>	<b>Marie-Pierre VIEU</b>
Front national — NI	Front de Gauche — GUE/NGL
France	France
<b>Bruno GOLLNISCH</b>	
Front national — NI	
France	





Claim 1

German and French S&D representatives shares the same political line in most of the subjects discussed in the European union.

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Search:

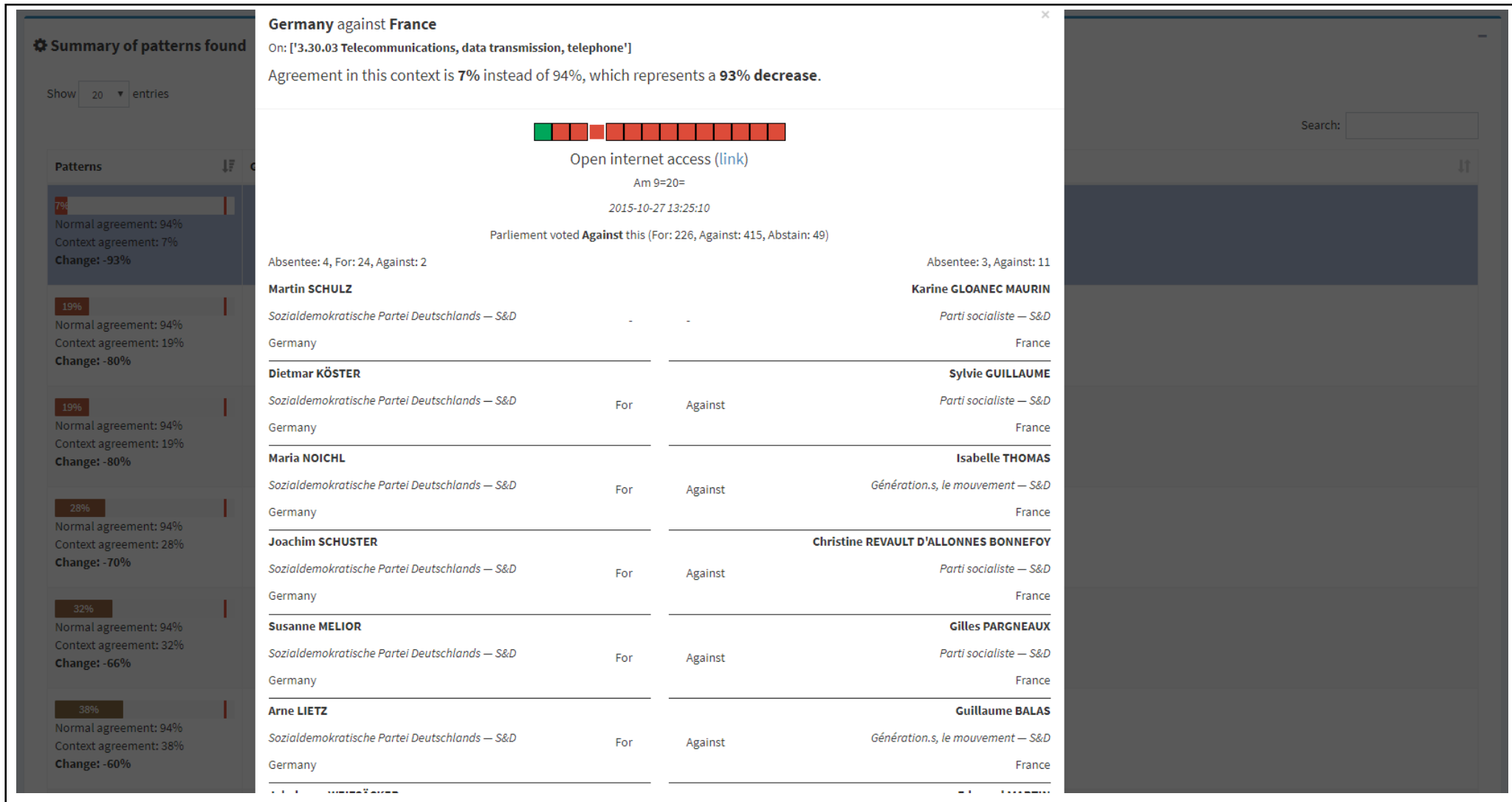
Patterns	Groups	Context
<div>7%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 7%</div> <div>Change: -93%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '3.30.03 Telecommunications, data transmission, telephone' ]
<div>19%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 19%</div> <div>Change: -80%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '3.30.20 Trans-European communications networks', '3.30.25 International information networks and society, internet' ]
<div>19%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 19%</div> <div>Change: -80%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '3.30.05 Electronic and mobile communications, personal communications' ]
<div>28%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 28%</div> <div>Change: -70%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '2 Internal market, single market', '3 COMMUNITY POLICIES', '4.60.06 Consumers' economic and legal interests' ]
<div>32%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 32%</div> <div>Change: -66%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '3.30 Information and communications in general', '4 Economic, social and territorial cohesion' ]
<div>38%</div> <div>Normal agreement: 94%</div> <div>Context agreement: 38%</div> <div>Change: -60%</div>	<ul style="list-style-type: none"><li>Germany</li><li>France</li></ul>	[ '2 Internal market, single market', '3.30.25 International information networks and society, internet' ]



# Fact Checking

### Claim 1

German and French S&D representatives shares the same political line in most of the subjects discussed in the European union.





## Lead Finding

Lead 1

What are the controversial topics between countries in the European parliament

Summary of patterns found

Search:

Show 5 entries

Patterns	Groups	Context
<div><div></div><div>Normal agreement: 86%</div><div>Context agreement: 0%</div><div>Change: -100%</div></div>	<ul style="list-style-type: none"><li>Sweden</li><li>Belgium</li></ul>	[ '6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union' ]
<div><div></div><div>Normal agreement: 86%</div><div>Context agreement: 0%</div><div>Change: -100%</div></div>	<ul style="list-style-type: none"><li>Sweden</li><li>Finland</li></ul>	[ '6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union' ]
<div><div></div><div>Normal agreement: 85%</div><div>Context agreement: 0%</div><div>Change: -100%</div></div>	<ul style="list-style-type: none"><li>Sweden</li><li>Lithuania</li></ul>	[ '6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union' ]
<div><div></div><div>Normal agreement: 84%</div><div>Context agreement: 0%</div><div>Change: -100%</div></div>	<ul style="list-style-type: none"><li>Sweden</li><li>Estonia</li></ul>	[ '6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union' ]
<div><div></div><div>Normal agreement: 84%</div><div>Context agreement: 0%</div><div>Change: -100%</div></div>	<ul style="list-style-type: none"><li>Sweden</li><li>Luxembourg</li></ul>	[ '6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union' ]

Showing 1 to 5 of 8 entries

Previous

1

2

Next



## Lead Finding

Lead 1

What are the controversial topics between countries in the European parliament

Summary of patterns found

Show 5 entries

Patterns

Normal agreement: 86%  
Context agreement: 0%  
Change: -100%

Normal agreement: 86%  
Context agreement: 0%  
Change: -100%

Normal agreement: 85%  
Context agreement: 0%  
Change: -100%

Normal agreement: 84%  
Context agreement: 0%  
Change: -100%

Normal agreement: 84%  
Context agreement: 0%  
Change: -100%

Showing 1 to 5 of 8 entries

Sweden against Belgium

On: ['6.10.02 Common security and defence policy; WEU, NATO', '8 State and evolution of the Union']

Agreement in this context is 0% instead of 86%, which represents a 100% decrease.

Financing the Common Security and Defence Policy (link)

§ 3/2

2015-05-21 12:18:08

Parliament voted For this (For: 382, Against: 239, Abstain: 26)

Absentee: 6, For: 6, Against: 9, Abstain: 4

For: 17, Against: 2, Abstain: 1, Absentee: 5

<b>Jasenko SELIMOVIC</b> <i>Liberalerna — ALDE</i> Sweden	-	For	<b>Gérard DEPRez</b> <i>Mouvement Réformateur — ALDE</i> Belgium
<b>Cecilia WIKSTRÖM</b> <i>Liberalerna — ALDE</i> Sweden	For	For	<b>Guy VERHOFSTADT</b> <i>Open Vlaamse Liberalen en Democraten — ALDE</i> Belgium
<b>Fredrick FEDERLEY</b> <i>Centerpartiet — ALDE</i> Sweden	For	For	<b>Anneleen VAN BOSSUYT</b> <i>Nieuw-Vlaamse Alliantie — ECR</i> Belgium
<b>Lars ADAKTUSSON</b> <i>Kristdemokraterna — PPE</i> Sweden	For	For	<b>Maria ARENA</b> <i>Parti Socialiste — S&amp;D</i> Belgium
<b>Anna Maria CORAZZA BILDT</b> <i>Moderaterna — PPE</i> Sweden	For	For	<b>Louis MICHEL</b> <i>Mouvement Réformateur — ALDE</i> Belgium
<b>Marit PAULSEN</b> <i>Liberalerna — ALDE</i> Sweden	For	For	<b>Hugues BAYET</b> <i>Parti Socialiste — S&amp;D</i> Belgium





## Mistrz i wicemistrz Śląska



## BĘDZIEMY GŁOSOWAĆ W 57 OBWOŁACH WYBORCZYCH

Przygotowania do zbliżających się wyborów do Sejmu i rad narodowych już się rozbiegły. Prezydium MRN w Gliwicach powołało Zespół Wyborczy, którego członkami są: Zarządca w kilku osobach - organizacyjny, spisowy, inkasowy i kontrolny. Zespół ten będzie pracował przy podziale na okręgi wyborcze do Sejmu i rad.

Radnikom z naszego miasta radzimy zainteresować się wynikami z sąsiednich powiatów. Wtedy się zorientujemy, kto lepiej spisał w bieżącym roku. W. B.

DZIS



- Czy znają się odpowiedzi na te pytania?
- Kto będzie zwycięzcą w tym konkursie?
- Kto będzie najlepszym w tym konkursie?

## Telewizja zdobywa wielką głośność

Wieloletni Włocławski gospodarz, który posiada 40 telewizorów, w tym 100 kubał. Jeden telewizor przypada więc na 40 osób.

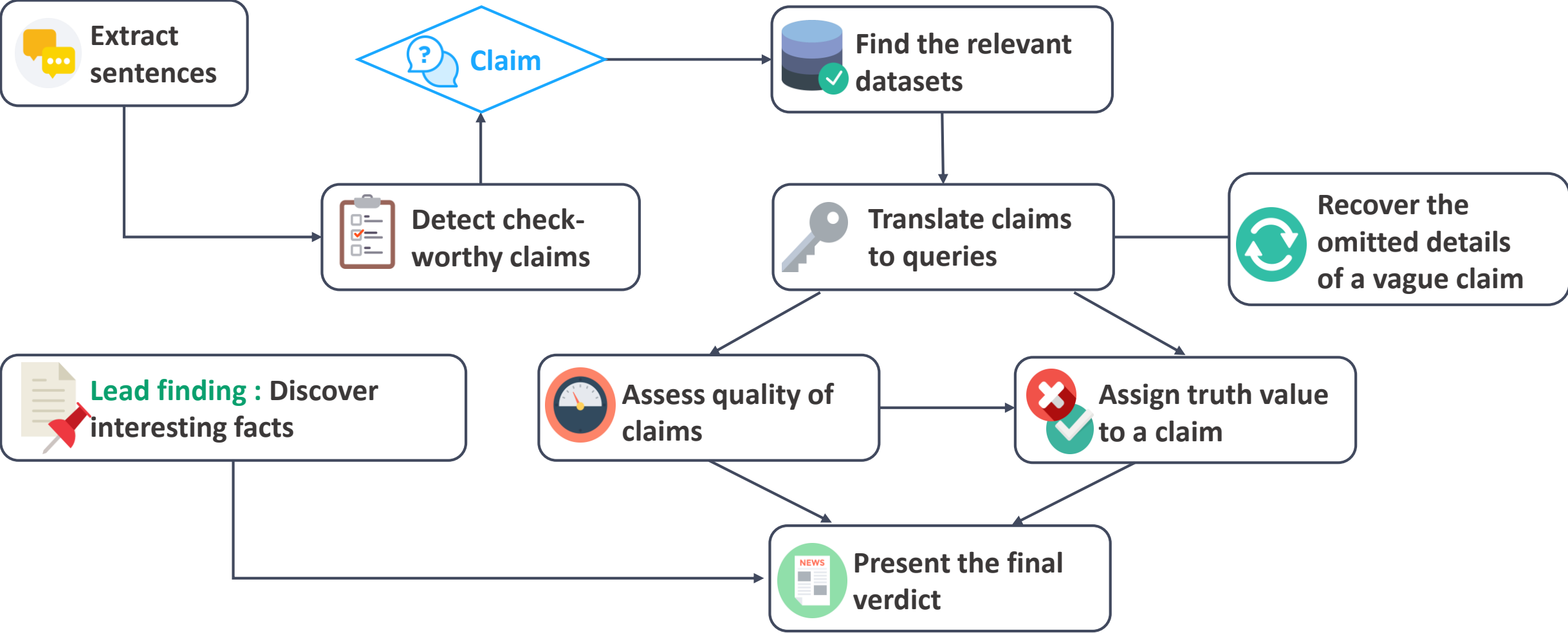
Jeden z największych w kraju

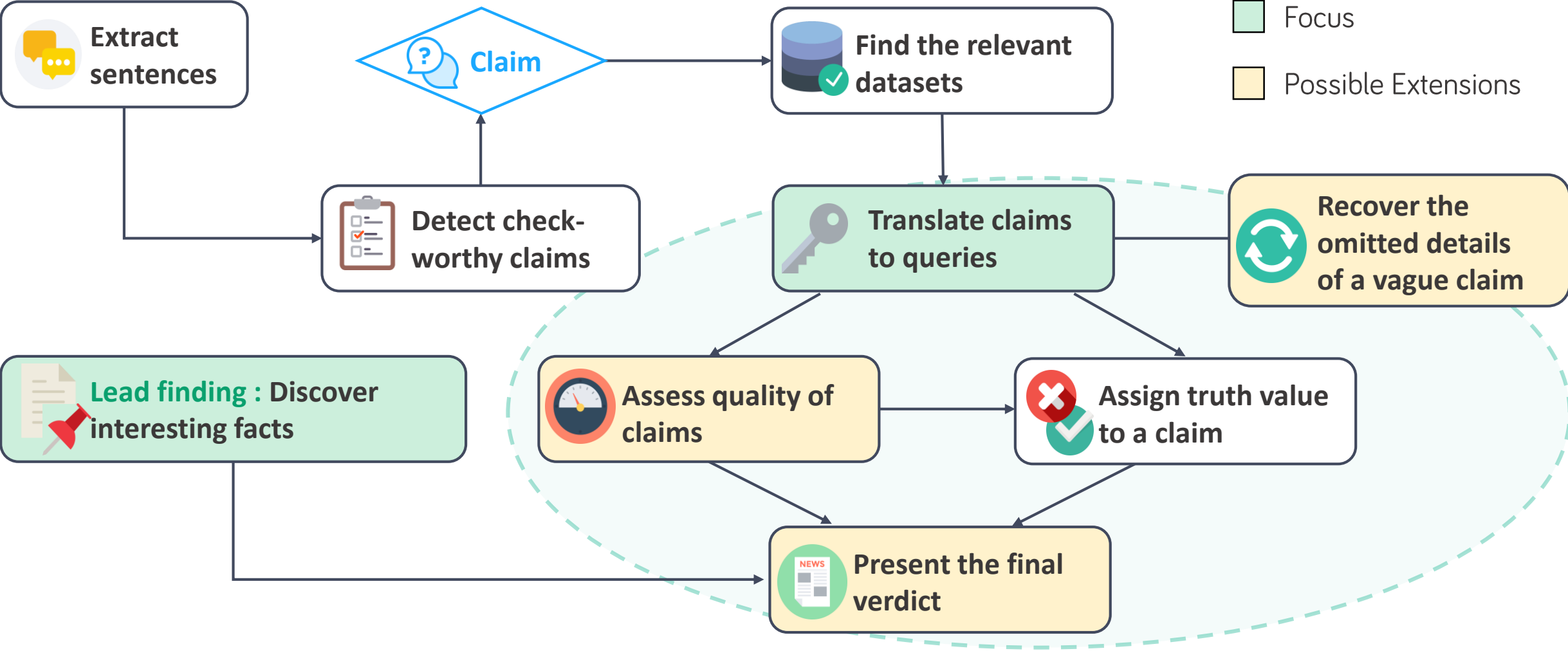
## Magazyn skór surowych w Toszku



WRAP

UP





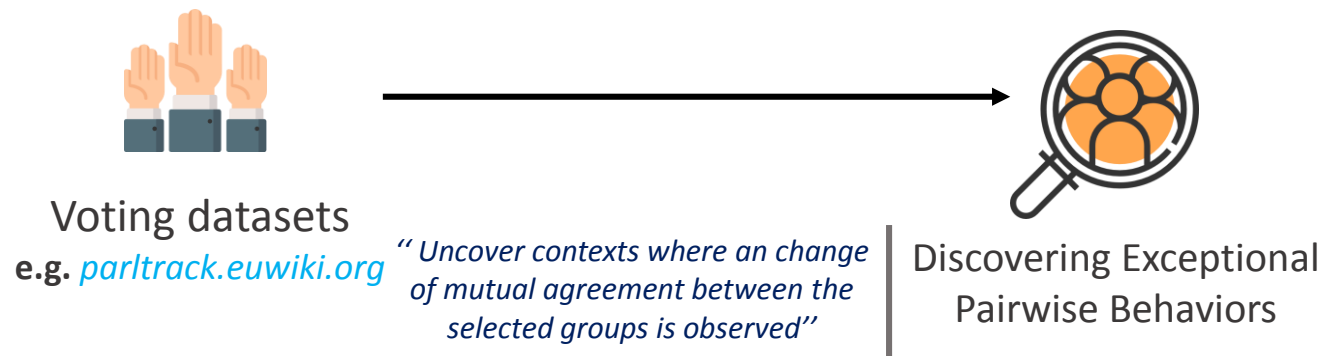


Voting datasets  
e.g. [parltrack.euwiki.org](http://parltrack.euwiki.org)

BALLOTS		
Id	Themes	Date
e1	1.20 Citizen's rights	20/04/16
e2	2.10 Free Movement of goods	16/05/16
e3	7 Security and Justice	11/06/16
e4	1.20 Citizen's rights; 7.30 Judicial Coop	04/06/16
e5	7.30 Judicial Coop	03/07/16
e6	7.30 Judicial Coop	29/07/16

DEPUTIES			
Idi	Country	Group	Age
I1	France	S&D	26
I2	France	PPE	30
I3	Germany	S&D	40
I4	Germany	ALDE	45

OUTCOMES		
idi	ide	Outcome
i1	e1	For
i1	e2	Against
i1	e5	For
i1	e6	Against
i2	e1	For
i2	e4	Against
i2	e3	For
i2	e5	For
i3	e1	For
i3	e2	Against
i3	e4	For
i3	e5	Against
i4	e1	For
i4	e3	For
i4	e6	Against



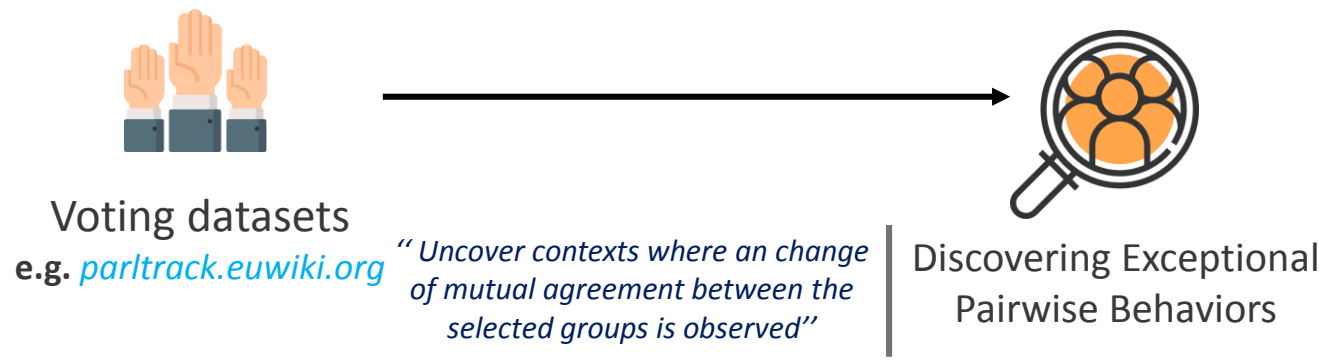
BALLOTS		
Id	Themes	Date
e1	1.20 Citizen's rights	20/04/16
e2	2.10 Free Movement of goods	16/05/16
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i1	e6	Against
i2	e1	For
i2	e4	Against
i2	e3	For
i2	e5	For
i3	e1	For
i3	e2	Against
i3	e4	For
i3	e5	Against
i4	e1	For
i4	e3	For
i4	e6	Against



We are interested in finding conflictual/consensual contexts between groups of deputies

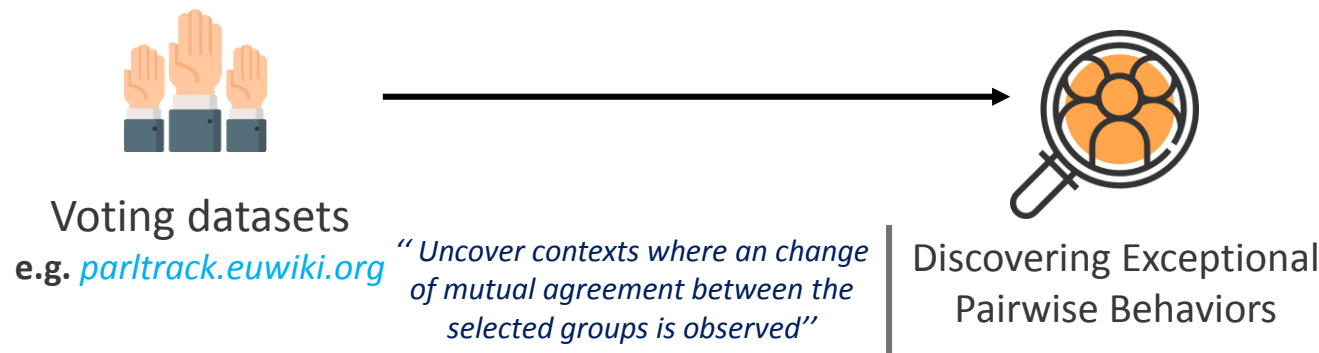


BALLOTS		
Idc	Themes	Date
e1	1.20 Citizen's rights	20/04/16
e2	2.10 Free Movement of goods	16/05/16
e3	7 Security and Justice	11/06/16
e4	1.20 Citizen's rights; 7.30 Judicial Coop	04/06/16
e5	7.30 Judicial Coop	03/07/16
e6	7.30 Judicial Coop	29/07/16

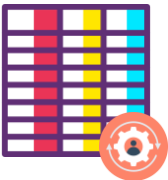
DEPUTIES			
Idi	Country	Group	Age
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i3	e2	Against
i3	e4	For
i3	e5	Against
i4	e1	For
i4	e3	For
i4	e6	Against

We are interested in finding conflictual/consensual contexts between groups of deputies



Exceptionalities		
Pattern	Overall Agreeem.	Context Agreeem.
< <b>Country</b> = France; <b>Country</b> = Germany; <b>Themes</b> ∋ 7.30 Judicial Coop >	67%	33%
< <b>Country</b> = France & <b>Group</b> = S&D; <b>Country</b> = Germany & <b>Group</b> = S&D, <b>Themes</b> ∋ 3.30.03 Telecommunications, data transmission, telephone.>	94%	35%
...	...	...



Results:  
Exceptional pairwise behavior patterns

BALLOTS		
Id	Themes	Date
e1	1.20 Citizen's rights	20/04/16
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e3	7 Security and Justice	11/06/16
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i2	e1	For
i2	e4	Against
i2	e3	For
i2	e5	For
i3	e1	For
i3	e2	Against
i3	e4	For
i3	e5	Against
i4	e1	For
i4	e3	For
i4	e6	Against

We are interested in finding conflictual/consensual contexts between groups of deputies

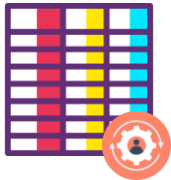


Voting datasets  
e.g. [parltrack.euwiki.org](http://parltrack.euwiki.org)

“Uncover contexts where an change of mutual agreement between the selected groups is observed”

Discovering Exceptional Pairwise Behaviors

Exceptionalities		
Pattern	Overall Agreement.	Context Agreement.
1 < Country = France; Country = Germany; Themes ∋ 7.30 Judicial Coop>	67%	33%
< Country = France & Group = S&D; Country = Germany & Group = S&D, Themes ∋ 3.30.03 Telecommunications, data transmission, telephone.>	94%	35%
...	...	...

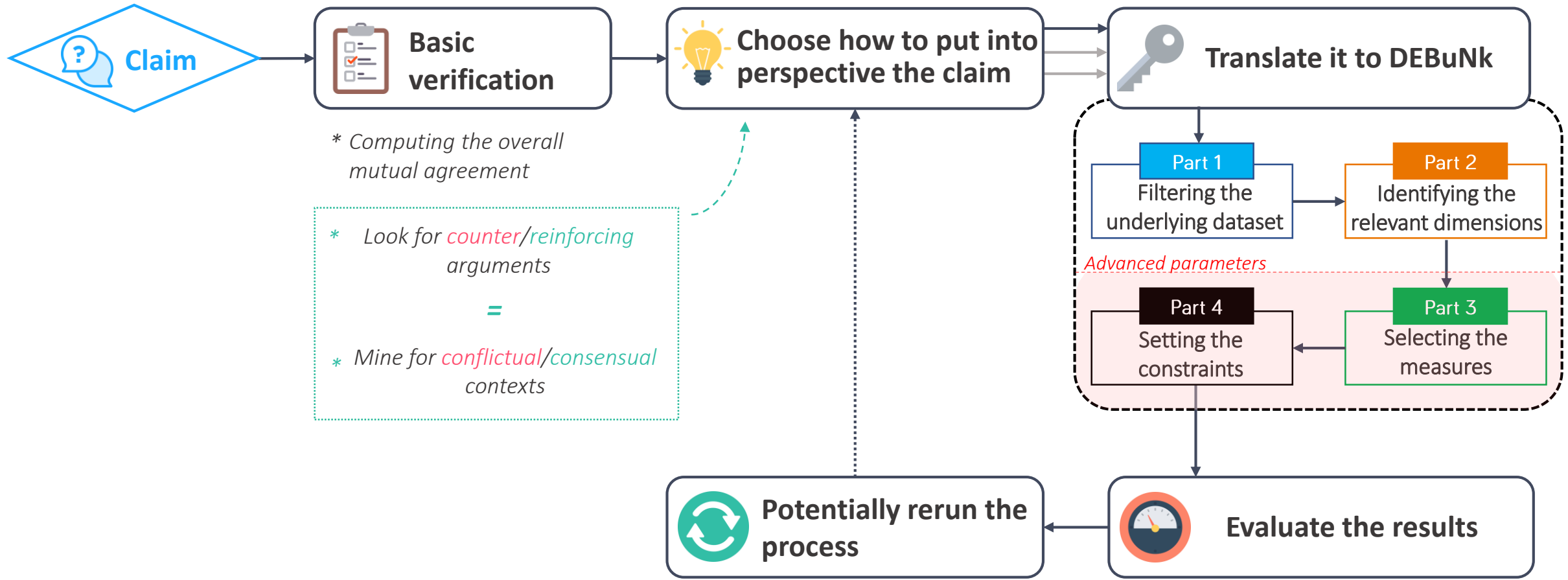


Results:  
Exceptional pairwise behavior patterns

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i2	e3	For
i2	e5	For
i3	e1	For
i3	e2	Against
i3	e4	For
i3	e5	Against
i4	e1	For
i4	e3	For
i4	e6	Against



## Mistrz i wicemistrz Śląska



## BĘDZIEMY GŁOSOWAĆ W 57 OBWOŁACH WYBORCZYCH

Przygotowania do zbliżających się wyborów do Sejmu i rad narodowych już się rozbiegły. Przydział MRN w Głivicach powołano. Zespół Wyborczy, którego członkowie są grupowani w kilku sekcjach – organizacyjnej, spisu, kandydatów i komisji – rozpoczął pracę przy podziale do komisji w okręgach.

Radnikom z naszego miasta radimy zainteresować się wynikami z sąsiednich powiatów. Wtedy się zorientujemy, kto lepiej spisał w bieżącym roku. W. B.

## Jeden z największych w kraju

## Magazyn skór surowych w Toszku

W ubiegłym roku oddany się w Toszku oddany magazyn surowych skór. Obiekt ten wzniesiony przez Gł. Budownictwa P. Centrali Surowych i Skórzanych będzie jednym z największych w kraju magazynów skór. Budowany systemem przemysłowym z dużych blach stalowych.

THANK  
YOU.

## Telewizja zdobywa wielą główną

Ministerstwo Wiadomości posiada 200 tysięcy 40 telewizorów. W tym roku minie 100 tysięcy. Jeden telewizor przypada więc na 40 osób.

DZIŚ



- Czy znają się odpowiedzi na...
- Nowości w wydawnictwach...
- Akcja „Z” – czyli... zapomnieli...
- Wielowieś będzie gromadą w...



## Mistrz i wicemistrz Śląska



## BĘDZIEMY GŁOSOWAĆ W 57 OBWOŁACH WYBORCZYCH

Przygotowania do zbliżających się wyborów do Sejmu i rad narodowych już się rozbiegły. Prezydium MRN w Głowicach powołało Zespół Wyborczy, którego członkami są: Zarząd w kilku osobach - organizacyjnej sprawy, Sekcja Instrukcyjna i Komisja Kwalifikacyjna. Prace przy powołaniu do komisji są już w toku.

Wynikami z naszego mistrzostwa radomir zajął się z sąsiadami powiatów. Wtedy się zarumieniało... lepiej spisać w bieżącym roku. W. B.

DZIS



- Coś trzeba się odpowiedzieć w dół
- Nowością wywołanych cił-wit.
- Akcja „Z” — czyli... zapomnieli.
- Wielowieś będzie gromada w pełni zmechanizowaną.

## Telewizja zdobywa wielą główną

Wielowieś Wielowieś posiadała już ponad 40 telewizorów. W tym roku zwiększono ich liczbę prawie 100 sztuk. Jednym telewizor przypada więc na 40 osób.

Jeden z największych w kraju

## Magazyn skór surowych w Toszku



W ubiegłym tygodniu odbył się w Toszku odbiór towarów z budynku magazynu skór surowych. Obiekt ten wzniesiono w Głowie. Przedsiębiorstwo Przemysłu Skórnego i Skórzanych w Toszku będzie jednym z największych w kraju magazynów skór surowych. W tym celu w Toszku wzniesiono nowy system przemysłowy z dużych blach stalowych.

W ubiegłym tygodniu odbył się w Toszku odbiór towarów z budynku magazynu skór surowych. Obiekt ten wzniesiono w Głowie. Przedsiębiorstwo Przemysłu Skórnego i Skórzanych w Toszku będzie jednym z największych w kraju magazynów skór surowych. W tym celu w Toszku wzniesiono nowy system przemysłowy z dużych blach stalowych.

ADDITIONAL  
DETAILS

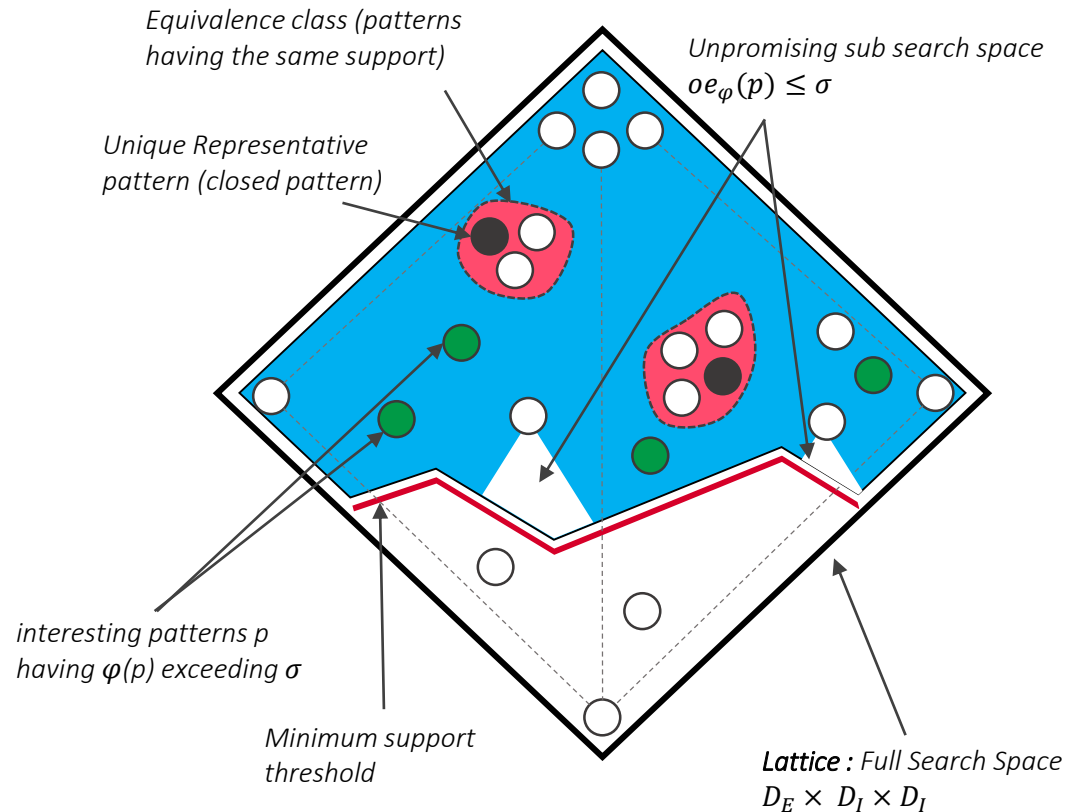




## Search space

Efficiently enumerate exceptional pairwise behavior patterns

- **Avoid redundancy** by considering only the most informative pattern of equivalents patterns in terms of their support
- **Prune unpromising sub search spaces** by using tight optimistic estimates on the defined quality measures (exceptionality measures)

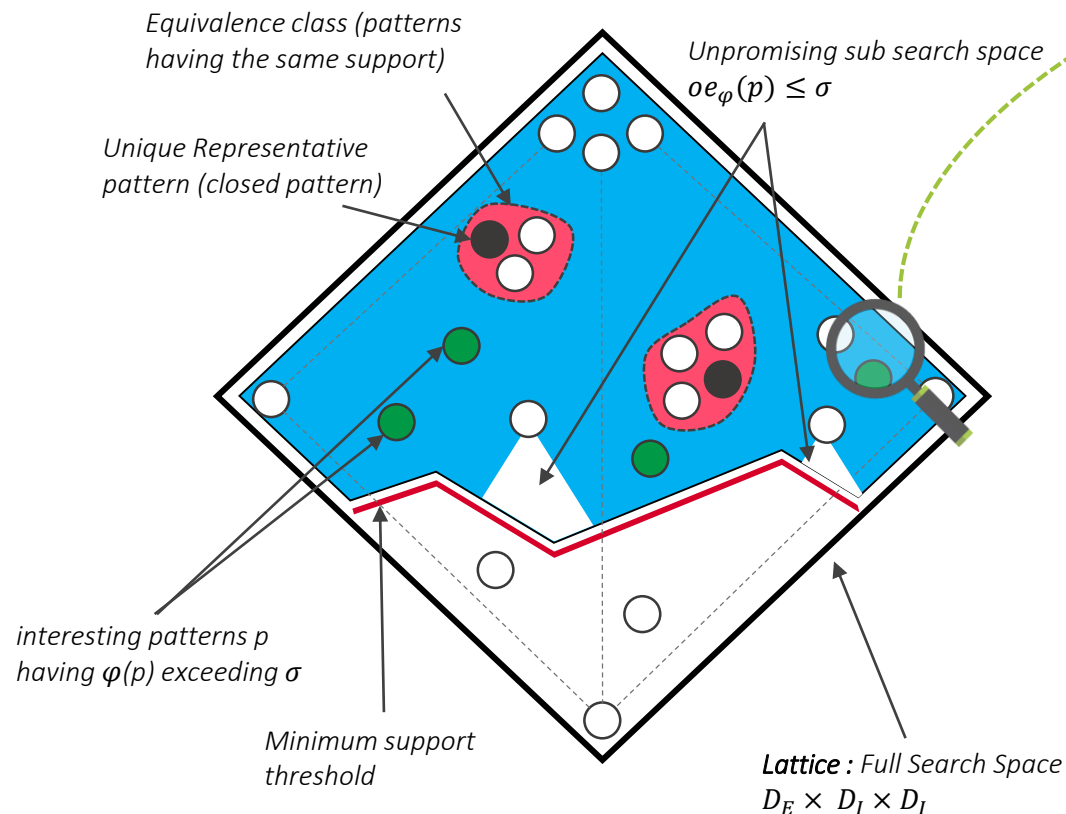




## Search space

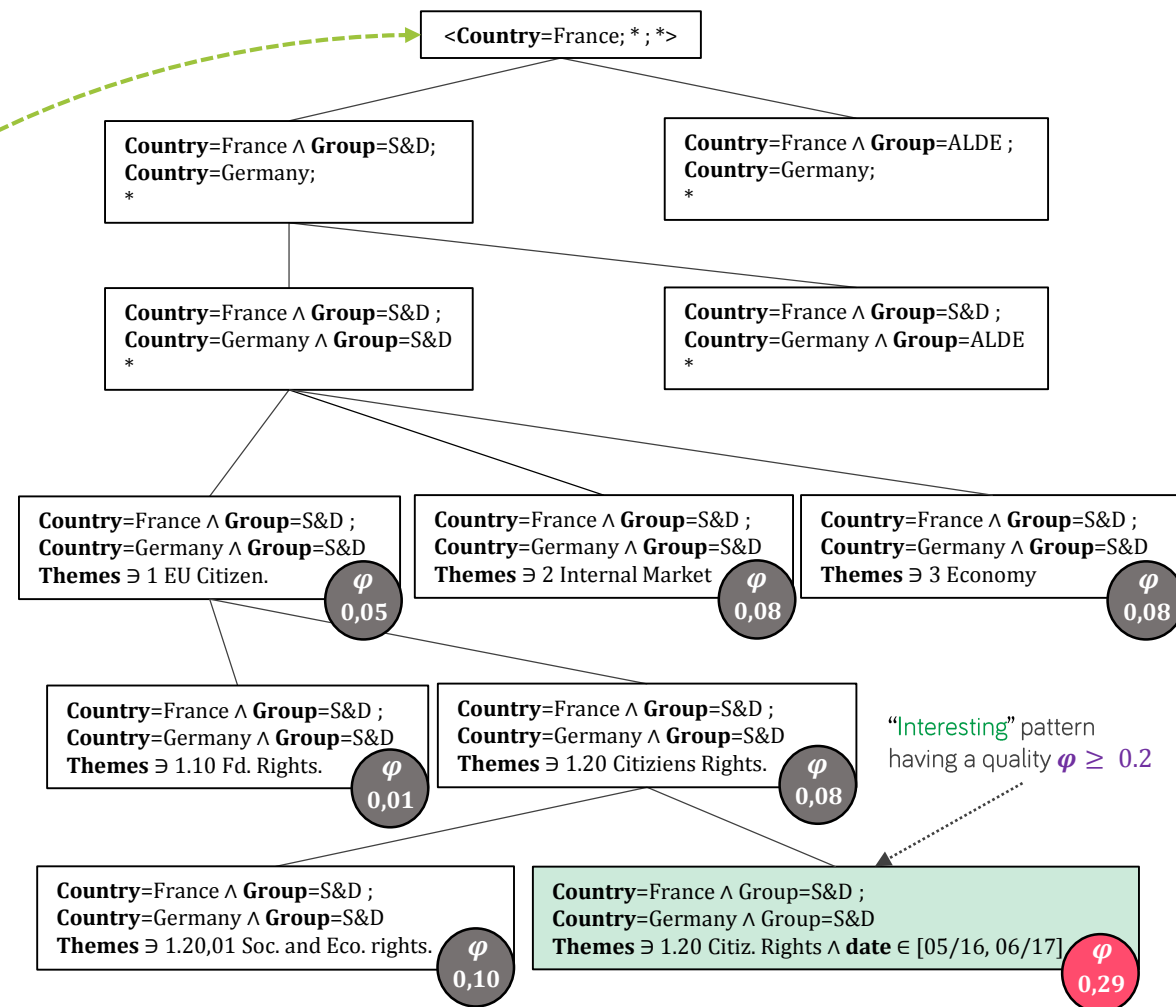
Efficiently enumerate exceptional pairwise behavior patterns

- **Avoid redundancy** by considering only the most informative pattern of equivalents patterns in terms of their support
- **Prune unpromising sub search spaces** by using tight optimistic estimates on the defined quality measures (exceptionality measures)



Discover **exceptional pairwise behavior patterns** of the form  $(g'; g''; c)$ :

- $c$  : a conjunction of conditions corresponding to a subset of entities
- $g', g''$  : two conjunction of conditions pointing out two groups of individuals





## Fact Checking

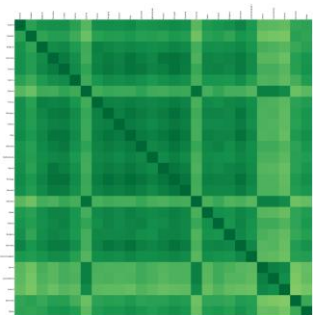
Assert the quality of a **behavioral claim** by its **contextualization** with the **available data**

**Claim:** There is no national position when it comes to votes in the European S&D political group

**Contextualize:** Is there contexts in which we observe disagreement between national political group in S&D



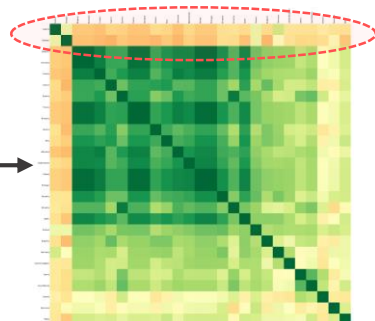
Discovering Similarities Changes



Usual pairwise similarity observed between countries representatives in S&D Group

Under the context

**Themes**  $\ni$  '6.10.02 Common security and defence policy; WEU, NATO'



< **Country** = Austria; **Country** = All; **Themes**  $\ni$  '6.10.02 Common security and defence policy; WEU, NATO'>



## Lead Finding

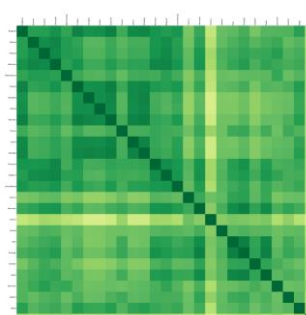
Finding **interesting information nuggets** from **raw data** that lead to **further investigation** and/or **news stories** around them.

**Raw data:** European parliament voting dataset with information about organized ballots and parliamentarians

**News lead:** investigate for controversial topics between countries



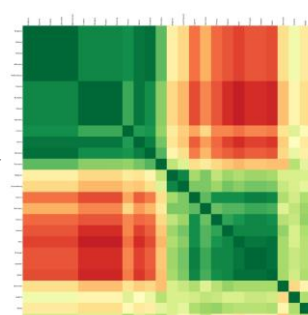
Discovering Similarities Changes



Usual pairwise similarity observed between countries representatives in EU 8<sup>th</sup> parliament

Under the context

**Themes**  $\ni$  '6.20.02 Export/import control', '6.30 Development cooperation'



< **EU\_MEMBER\_SINCE**  $\in$  [1958, 1995]; **EU\_MEMBER\_SINCE**  $\in$  [1981, 2013]; **Themes**  $\ni$  '6.20.02 Export/import control', '6.30 Development cooperation'>