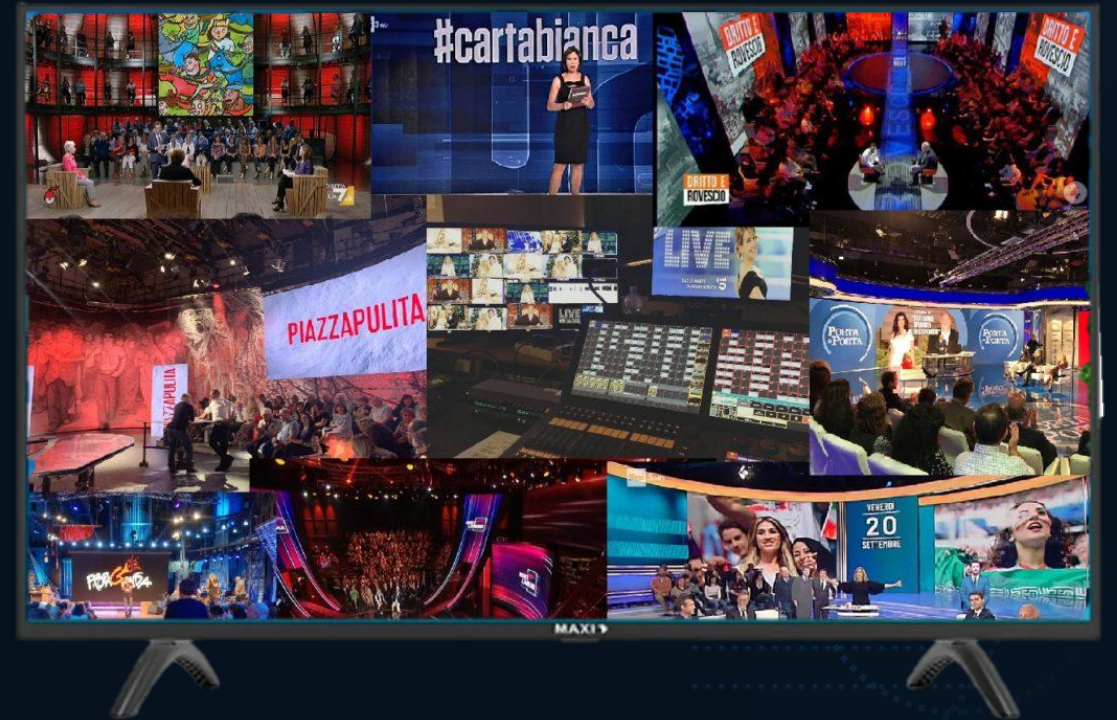


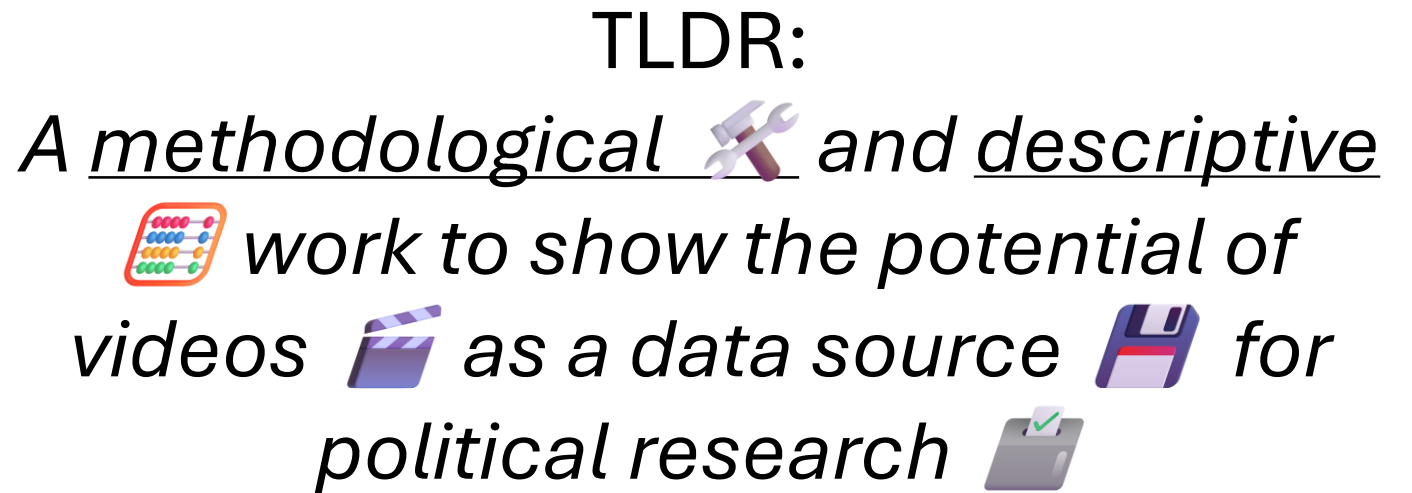
Political Talk Show Videos As Data



Gabriele Pinto
Sapienza University
**Department of Social and
Economic Sciences**
29/04/2026

Riunione Tortuga Think Tank





In a nutshell 1/2



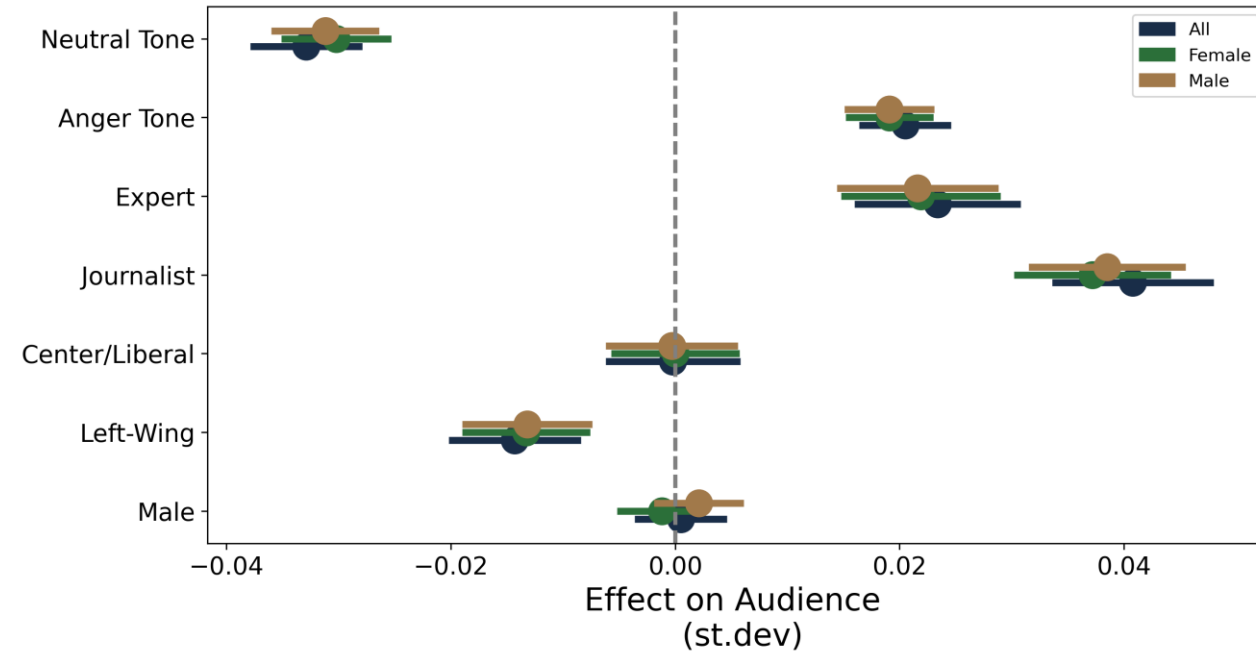
- We collect 5 years (2018-2023) of video episodes of two major Italian Political Talk Show (“*Otto e mezzo*” & “*Stasera Italia*”)
- We apply Machine Learning Tools to construct a large (*million of rows*) *second-by-second* dataset of:
 - **Who is talking**
 - Male or female?
 - Journalist or Expert?
 - Etc..
 - **When**
 - Speaking time
 - Presence
 - **What are they saying (complete transcriptions)**
 - **Tone of the Voice & Emotion of the Faces**
 - Angry? Happy? Surprised? Aggressive?



In a nutshell 2/2

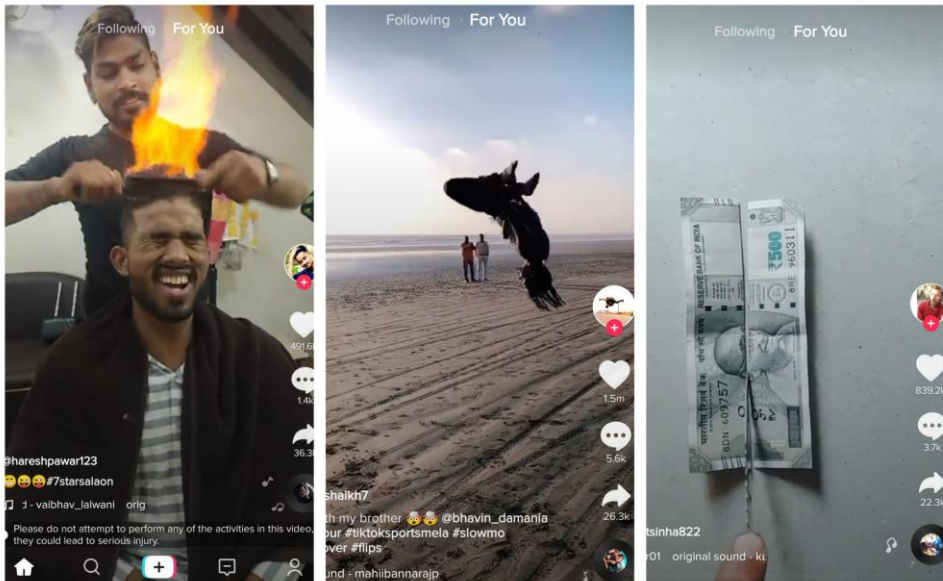


- We match these data with *minute-by-minute* Auditel TV audience share to analyze:
 - the response of the audience to different settings (gender, type of speakers etc...)



Why Video

- Video is becoming **more and more an important tool of communication** (just look at the format of «new» social media like tik-tok, instagram reel, etc..)



Why Video

The tools and methodologies presented here **can be applied also to other video-sources different from television**



1za stampa prevista per il Primo Maggio, la mattina dopo il tour Longobardi, giovane guru della comunicazione web della premier



Video is an effective medium of communication

7-55-38

Mehrabian Rule (Myth) of communication

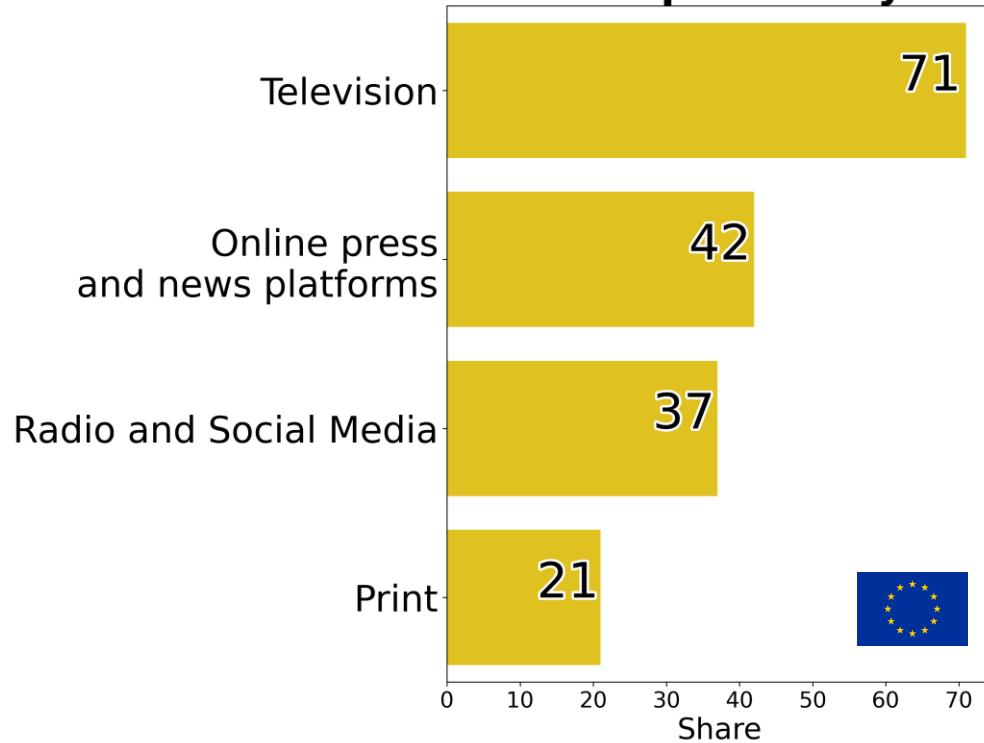
Text		{	Words convey only 7 percent of a message..	7%
Tone			Tone account for 38 percent of the message..	38%
Expression			The rest (55 percent) is accounted by the Body language (gestures and facial expression)	55%

Why Television

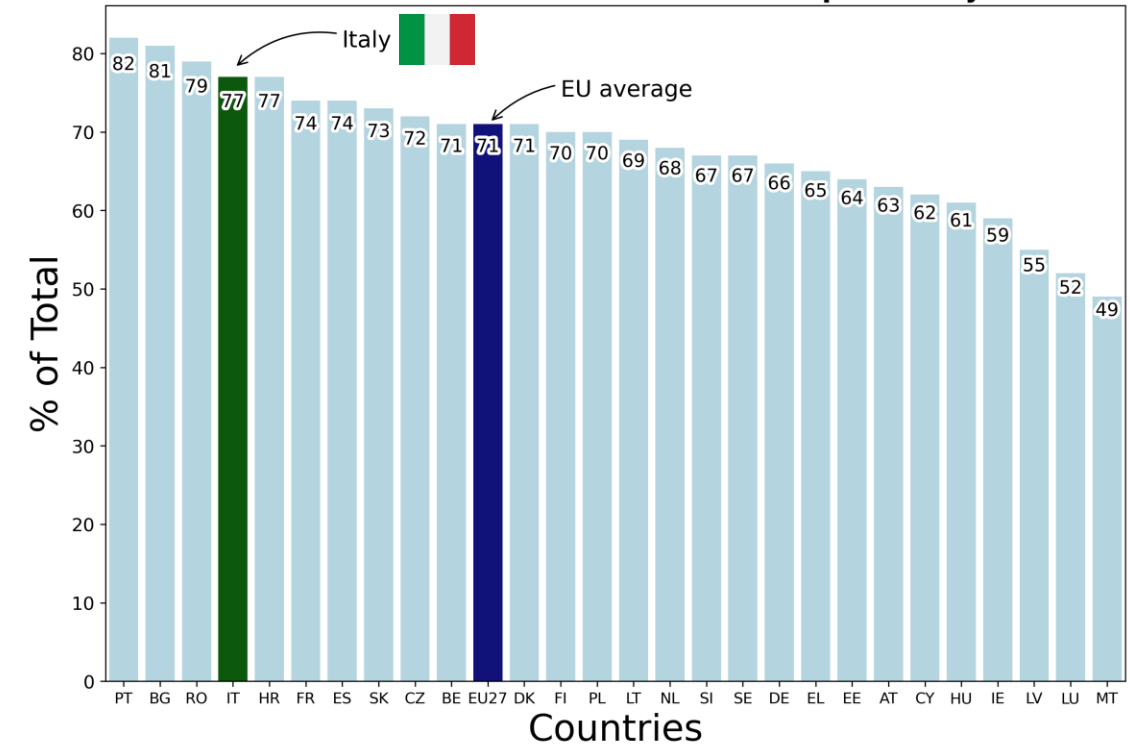


Despite the widespread use of Internet (and social networks), **Television has remained the main and undisputed primary source of (political) information.**

Used media to access news in the past 7 days



Used Television to access news in the past 7 days

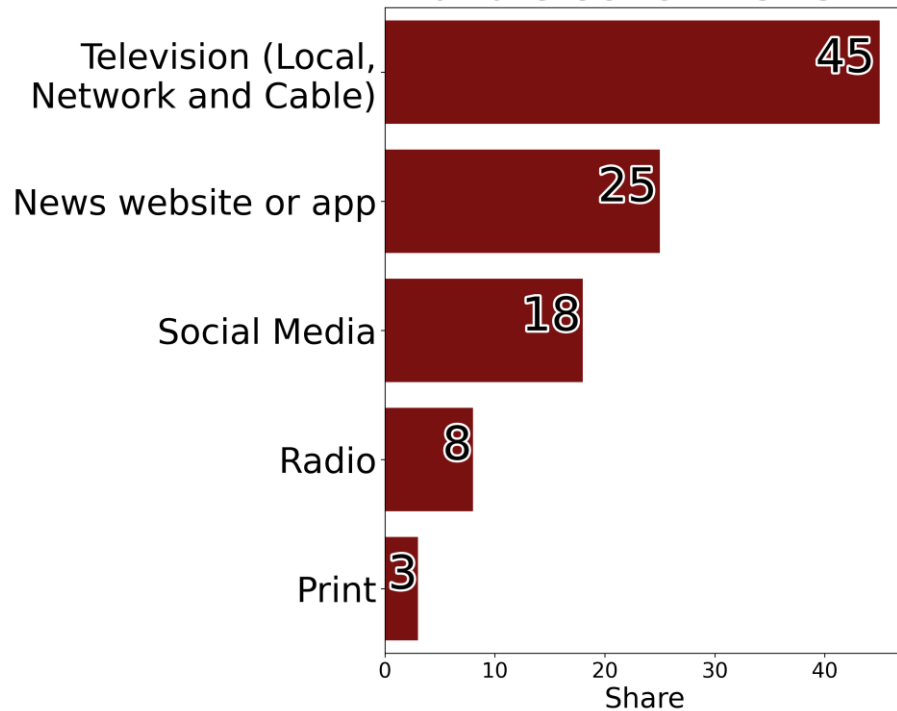


Eurobarometer, Media & News Survey, 2023

Similar in US and Europe



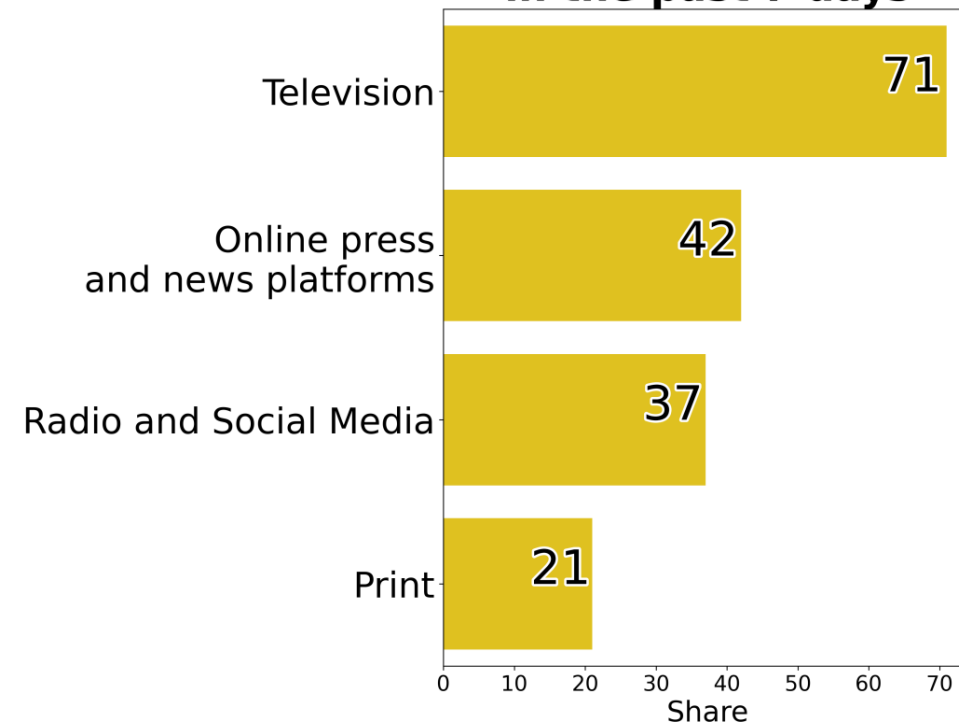
Most common way you get political and election news?



Data from PEW Research Center, 2020



Used media to access news in the past 7 days



Eurobarometer, Media & News Survey, 2023

Why Political Talk Show and Italy

- Archetype of “opinion TV” (Burstzyn et al. 2023; Lazer et al. 2018)...
- ...are common around the world, but **Italy is probably the country where this type of format has been more successful** (Novelli 2016) .
- ...virtually constitute the most **important gateway to the national debate** (agenda setting).



Why Political Talk Show, and Why Italy

As of October 2023, **five out of the seven most important TV channels**, have a PTT in their Prime Time schedule. At the peak of the Prime Time, **between 20.30 and 21.30, it is estimated that almost 40% of the audience are watching a PTT** (almost 9 million people out of a total of 60 million of Italian).

Channel	Time schedule	Name of the show	Presenter	Share (%)	Spectators (million)
Rai 1	20.30 - 20.35	Cinque Minuti	Bruno Vespa	21%	4.4
Rai 2	21.00 - 21.30	Tg2 post	Francesca Romana Elisei	3%	0.7
Rai 3	20.40 - 20.50	Il cavallo e la Torre	Marco Damilano	6%	1.3
Rete 4	20.30 - 21.20	Stasera Italia	Stefania Cavallaro	4%	0.8
La 7	20.35 - 20.15	Otto e Mezzo	Lilli Gruber	8%	1.8
Total				42%	9.05

Auditel data for Prime Time Political Talk show broadcasted on October 23, 2023. The selection of the shows has been restricted to those of a short length (less than hour) that are broadcasted between 20.30 and 21.30, and that have a format that is comparable to *Otto e Mezzo*. Source of data: Auditel data retrieved from online news source.

Why television so important

Accessibility



Recognition

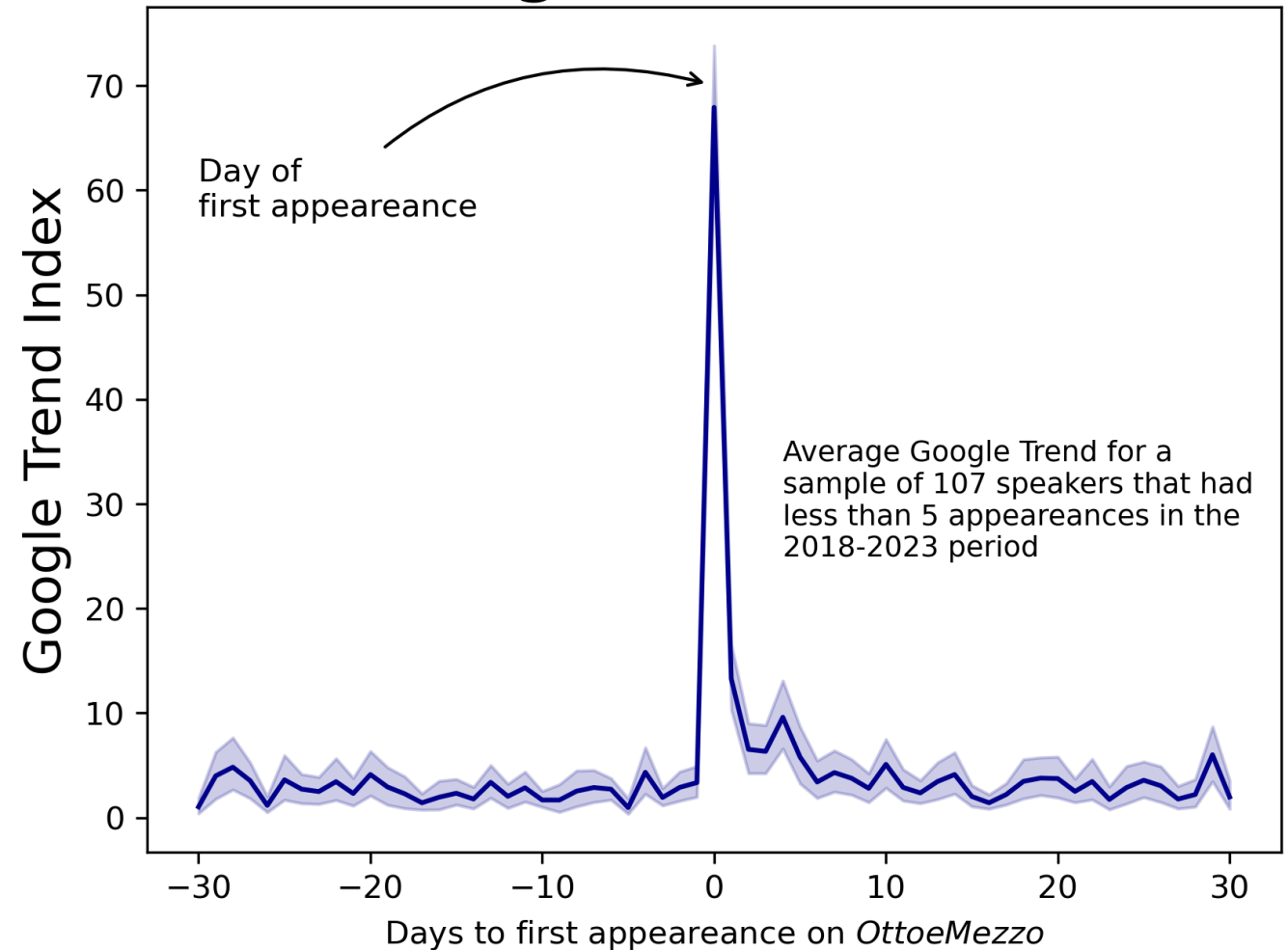
(Kam and Zechmeister 2013)



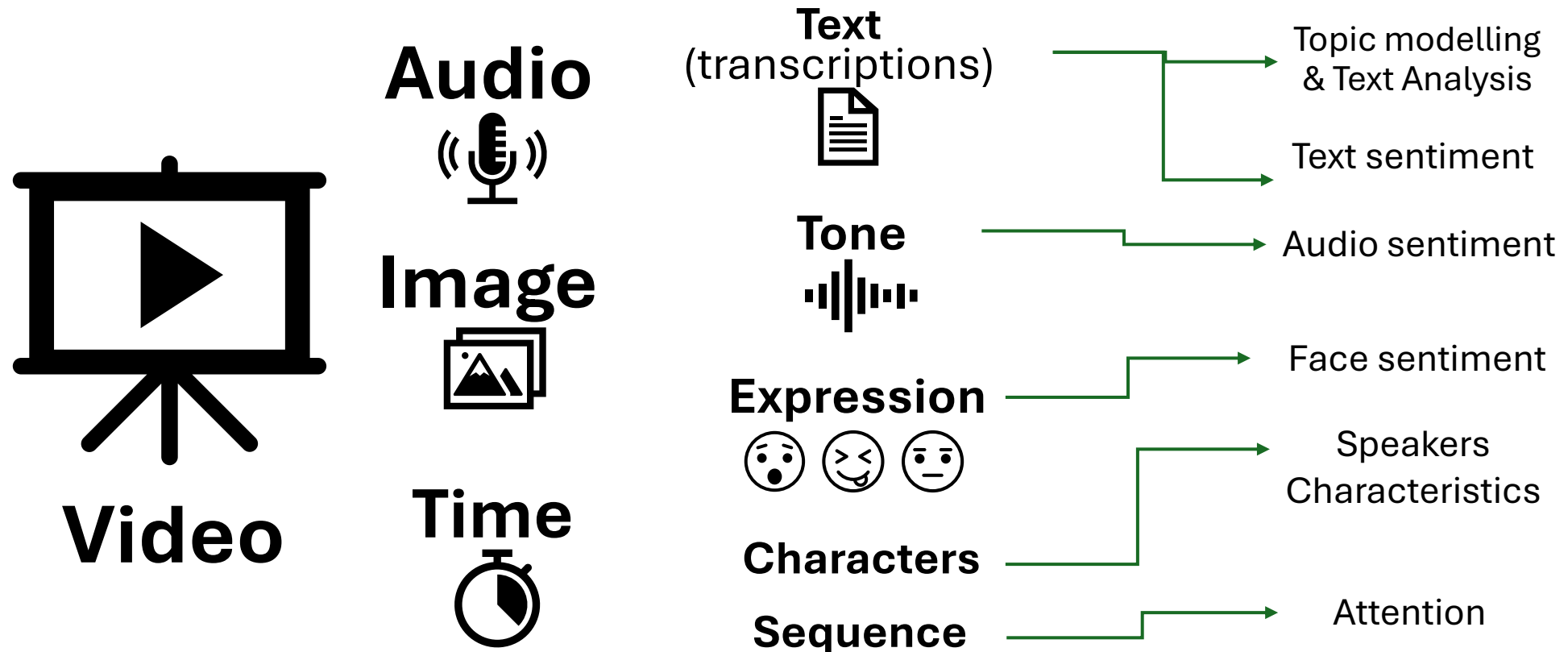
Reputation



Recognition "effect"



...and can be a rich source of data



Is there a “gap” in the study video content?

- Currently, television and videos **are seldom employed** -> **The data collection process heavily relies on human coders (\$\$).**
- While television content is extremely “large”, available datasets **are often restricted to very small samples (especially TV news)**, that often contains only derivate information: *metadata, small description, etc..*



Related literature: content analysis (transcripts)

Analysis of Transcriptions

- Ouss et al. (NBER, 2023)
How television discuss Police Killings
- Hirsch et al (EjPE 2024)
Tonality of TV-NEWS and government bond yields
- Gambaro et al. (CESIFO 2023)
Demand for soft VS bad news with auditel data
- Caprini (JpubEcon, 2023) Pope Breaking News and support for *Forza Italia*



Psy & Political Communication

Dumitrescu (AmBehSci, 2016), Bucy (2010), Bousallis & Coan (PolComm, 2021) Senior et al. (Front Psychol., 2022), Joo & Steinert-Threlkeld (2022)

Why we construct our data from scratch

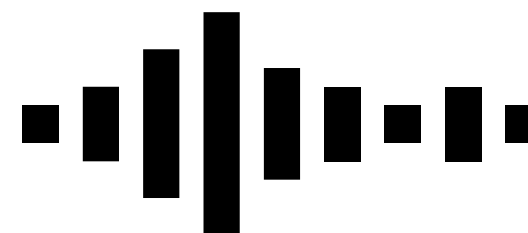
- **Dataset of television content exists, also in Italy** (e.g. Osservatorio di Pavia)
- Often limited in terms of **sampling and granularity**
- Some of these data are even available (on the AGCOM website), however, they often regards only **prominent political figures, and not as granular compared to what we can obtain starting from scratch.**



Related literature: content analysis (audio analysis)

Audio Tone Analysis

- Gorodnichenko et al. (AER, 2023)
after controlling for the FED actions and the sentiment in the texts, a positive tone in the voices of FED chairs leads to significant increases in share prices
- Handlan & Sheng (mimeo 2023)
Gender and Tone in Recorded Economics Presentations: Audio Analysis with Machine Learning



Related literature: content analysis (image and video)

Image analysis: politicians



- Tarr et al. (Political Analysis, 2023)
Automated coding of Political Video Campaign
- Girbau et al. (Political Analysis, 2024)
Face Detection, Tracking, and Classification from Large-Scale News Archives (US & Japan)
- Caprini (mimeo, 2024)
Visual Bias, Analysis of image preview of US news articles

Image analysis: gender and minorities



- Donggwan Kim et al. (mimeo, 2023)
TV Advertising Effectiveness with Racial Minority Representation: Evidence from the Mortgage Market
- Goli & Mummalaneni (mimeo, 2023)
women Vs men in CNN, Fox News and MSNBC

U.S. TV annotations



Japanese TV annotations



Some novel contributions:

1. We analyze “opinion TV” (not straight news)
2. We are able to identify and track the universe of speakers of a video
(not depending on “Celebrities API” or, for example “AGCOM” data)
3. We are able to extract primary data from Audio, Image and Transcript features
(not depending on external hand-coded dataset, and **providing a scalable methodology for other video sources**)

The Sample

5 years of episodes (2018-2023), covering the COVID-19 pandemic, the Ukraine Invasion, the Palestine-Israel conflict, and two national elections.



Otto e Mezzo

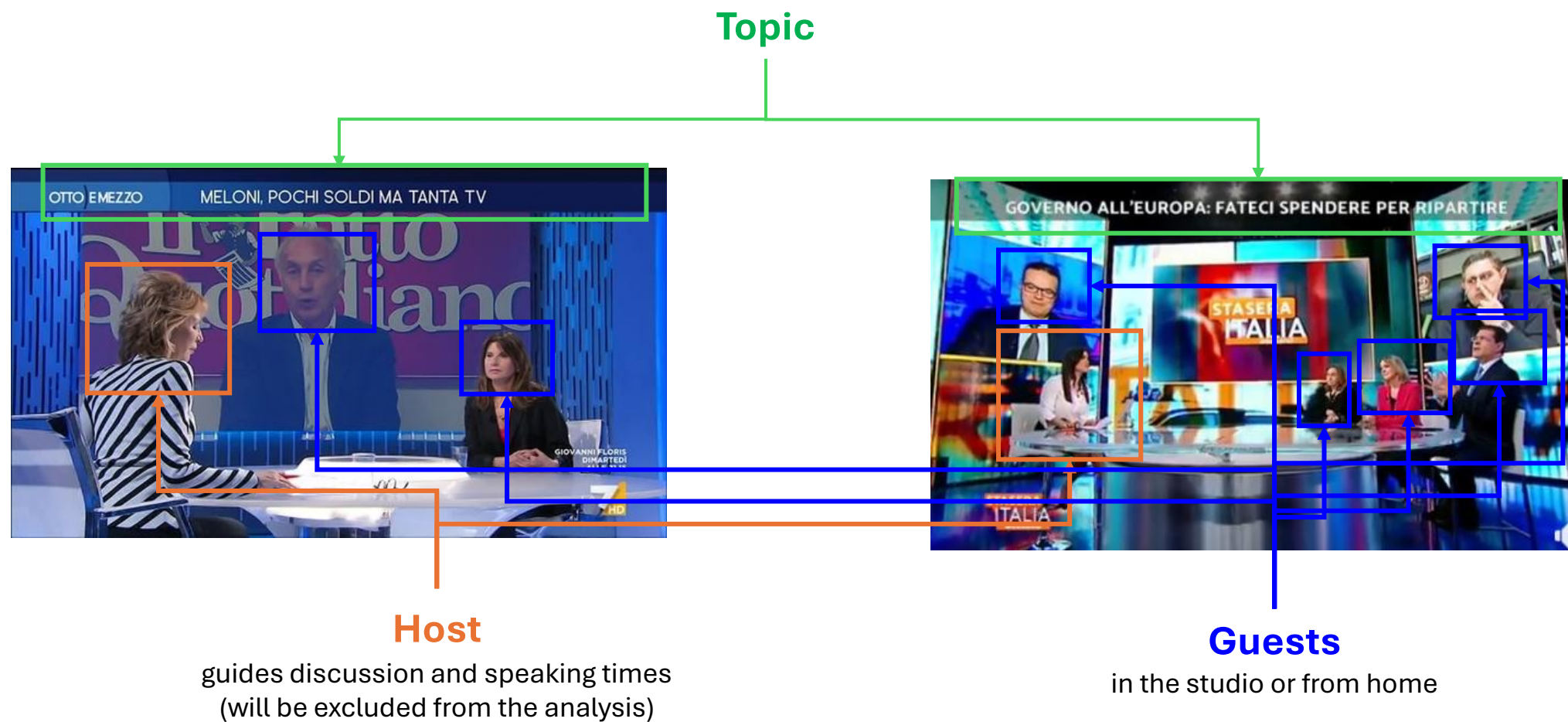


Stasera Italia

Broadcast time	20:35-21:10 (35 mins)	20:30-21:20 (50 mins)
Channel	La 7 (Cairo Editore)	Rete 4 (Mediaset, i.e. <i>Berlusconi</i>)

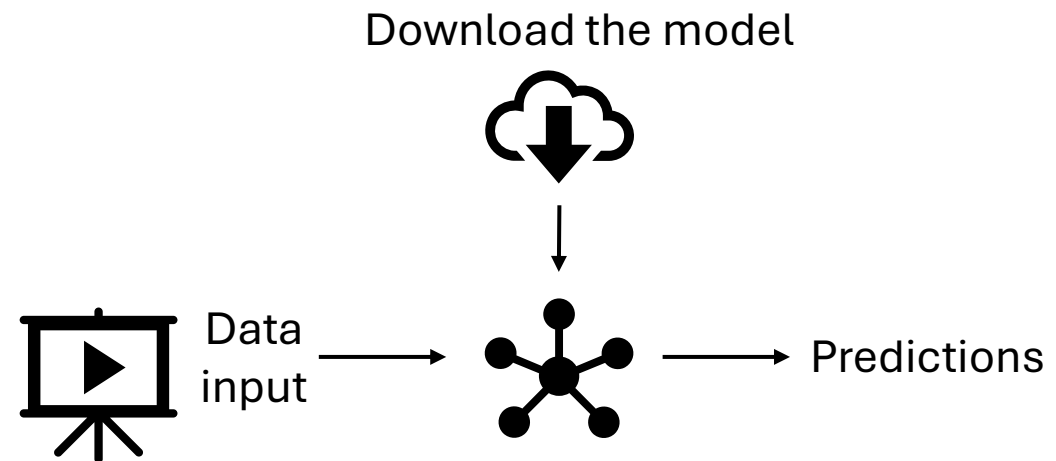
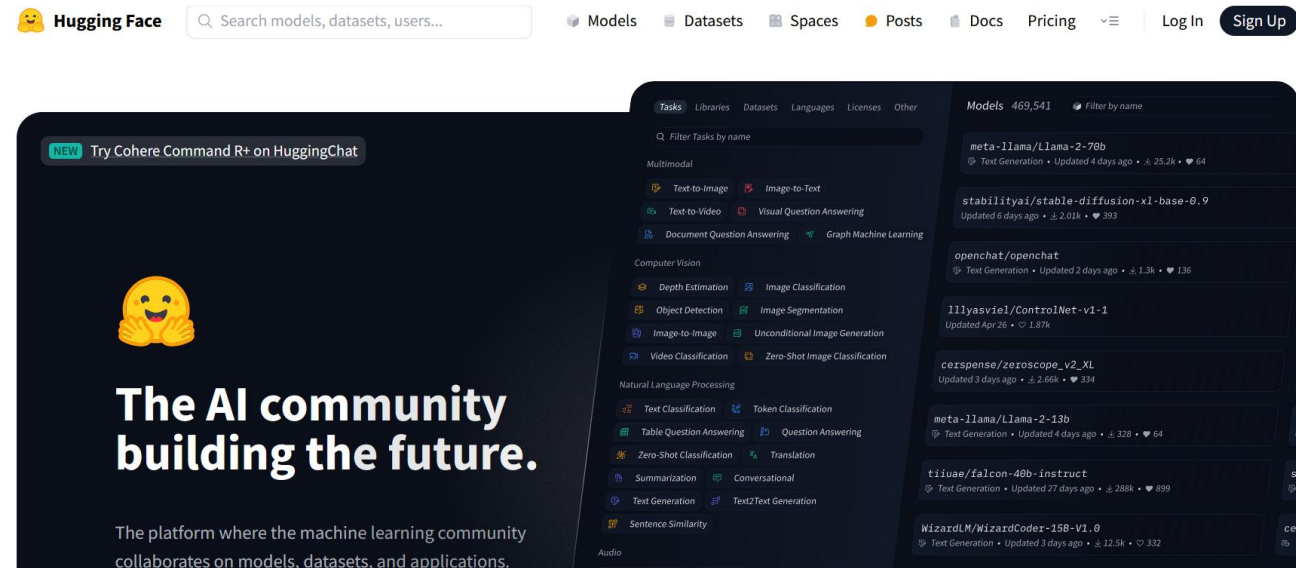
2 -3 million daily viewers (auditel share 8% and 5%)

The Format



Which model we use

- We mostly use **Pre-Trained** models available on hugging face (a sharing platform for ML models)
- **Open Access and Open Source (FREE \$)**



Tools

- **Diarization (Pyannote)**

(Plaquet & Bredin 2023)

start	end	speaker	nome_file	speaker_key
4.932088	25.577250	2	4xi-qVsXeNM	2_4xi-qVsXeNM
13.879457	13.896435	0	4xi-qVsXeNM	0_4xi-qVsXeNM
13.896435	14.524618	1	4xi-qVsXeNM	1_4xi-qVsXeNM
63.047538	93.998302	2	4xi-qVsXeNM	2_4xi-qVsXeNM
95.475382	99.312394			
...	...			

- **Identification (OCR on lower third)**



- **Transcripts (Whisper – OpenAI)**

timestamp	text
(0.0, 7.28)	Buonasera e benvenuti a 8 e mezzo.
(7.52, 9.8)	Buonasera e benvenuta Evelina Cristillem,
(9.9, 12.38)	Presidente della Fondazione del Museo Egizio ...
(12.38, 14.14)	e membro del Consiglio della FIFA.
(14.46, 17.08)	Buonasera Marco Travaglio, Direttore del Fatt...

- **Tone Sentiment**



SpeechBrain (Ravanelli et al. 2021)

trained on IEMOCAP (accuracy 78%)

Happy
Neutral
Anger
Sad

Diarization, Speaker Identification, and Transcripts

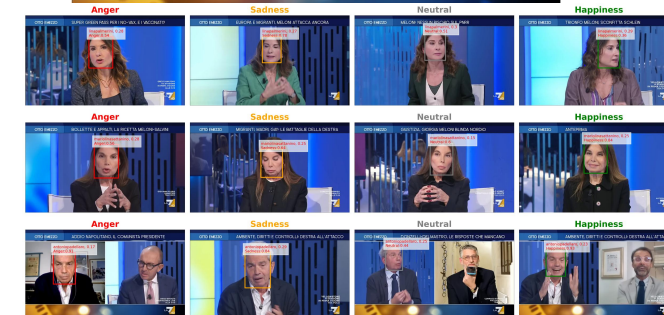
- Face Detection and Face Recognition

MTCNN (Multi-Task Cascaded Convolutional Networks)
(Schroff et al., 2015; timesler, 2024; Zhang et al., 2016)
Accuracy LFW~99



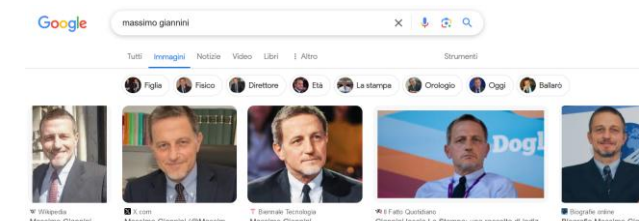
- Face Emotion

(High-Speed face Emotion recognition) from Savchenko (2023)
accuracy ~60-65% on AffectNet (8-7 classes)



- Face Recognition

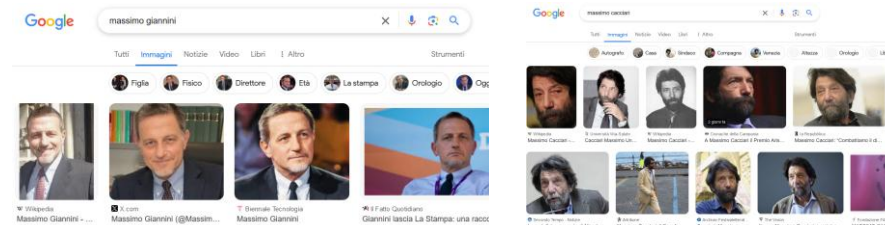
an ad-hoc pipeline to create a
“ground truth” collection of images for each speaker



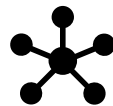
Face Recognition



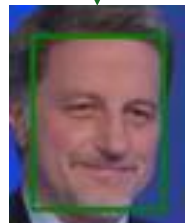
“Google Collection”
[we only search for speaker **we know** are in the episode
(from the diarization dataset)]



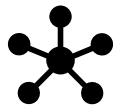
Vector Embeddings



Face Verification
(e.g. compute distance)



Vector Embeddings



If Face is Verified
(e.g. if probability is high)

If Face is Not Verified

“True Collection”



Add the Face to the
collection

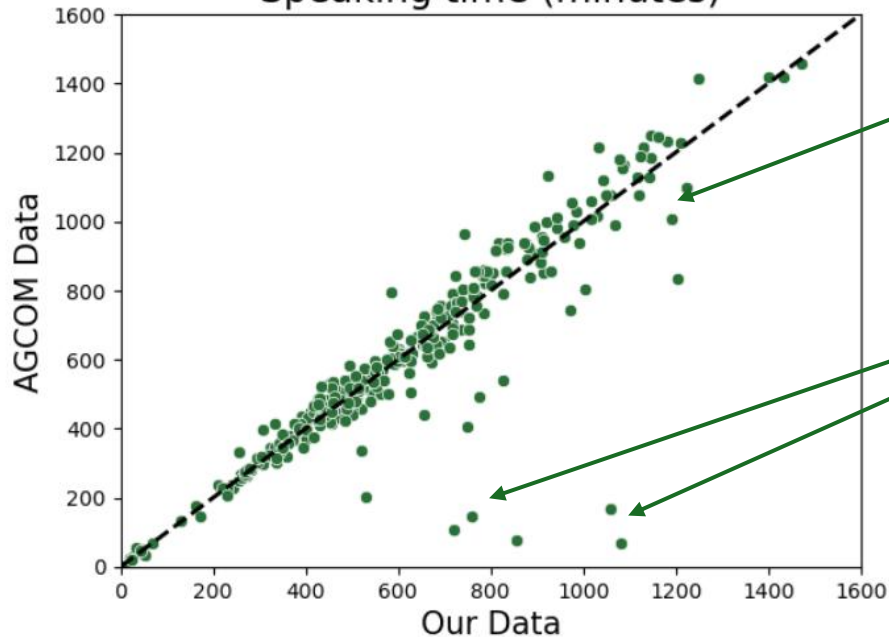
Validation

Validation of Speaking and Face Time

Validation of Speaking Time



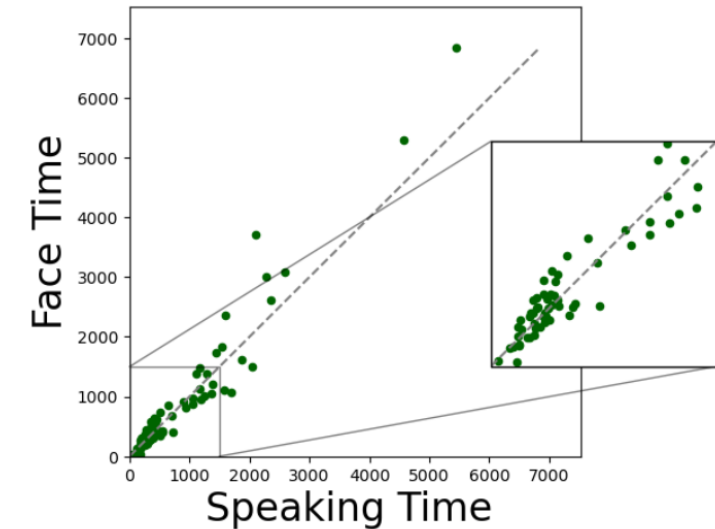
Speaking time (minutes)



Each dot is one speaker in one episode of *Otto e Mezzo*

We inspected those outliers that resulted **to be errors in the AGCOM data!**

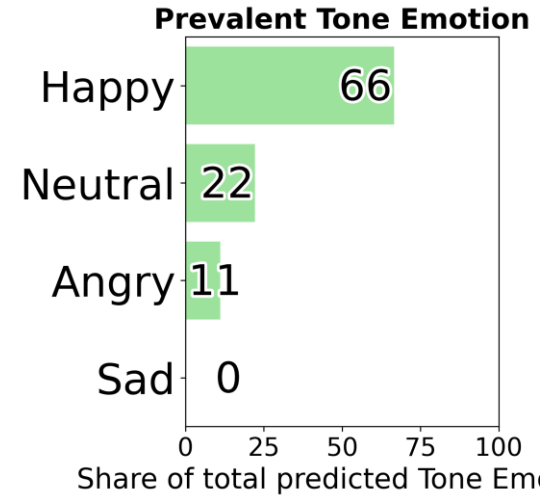
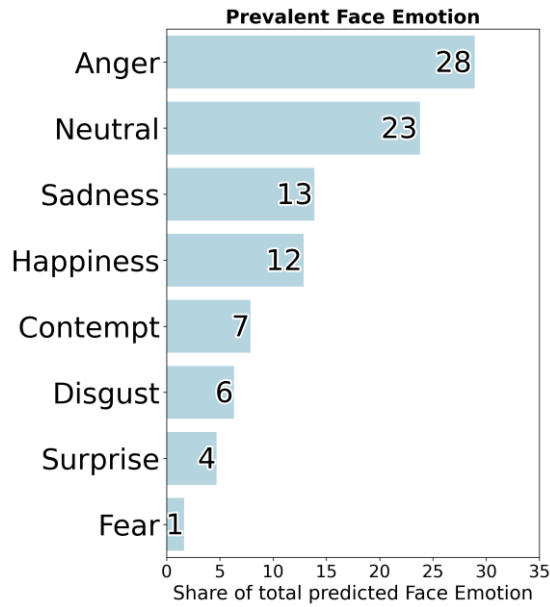
Validation of Face Recognition



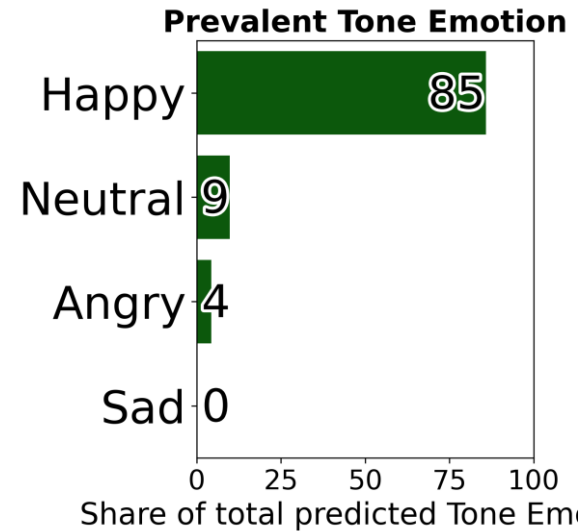
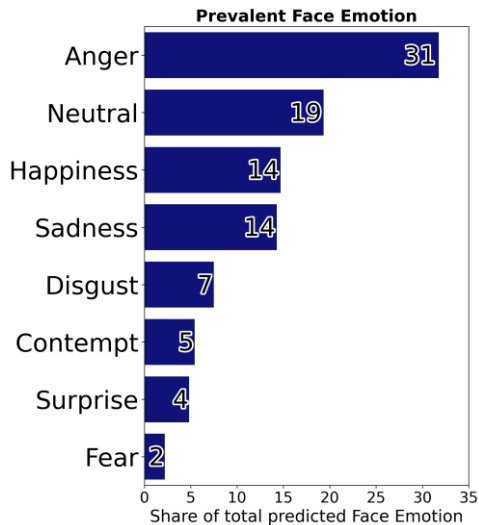
...after manually inspecting a sample of 100 frames:

	Face Detected	Face Recognized
True	142 (95%)	140 (98%)
False	7	2
Total	149	142

Face VS Tone Emotions



Note the differences...



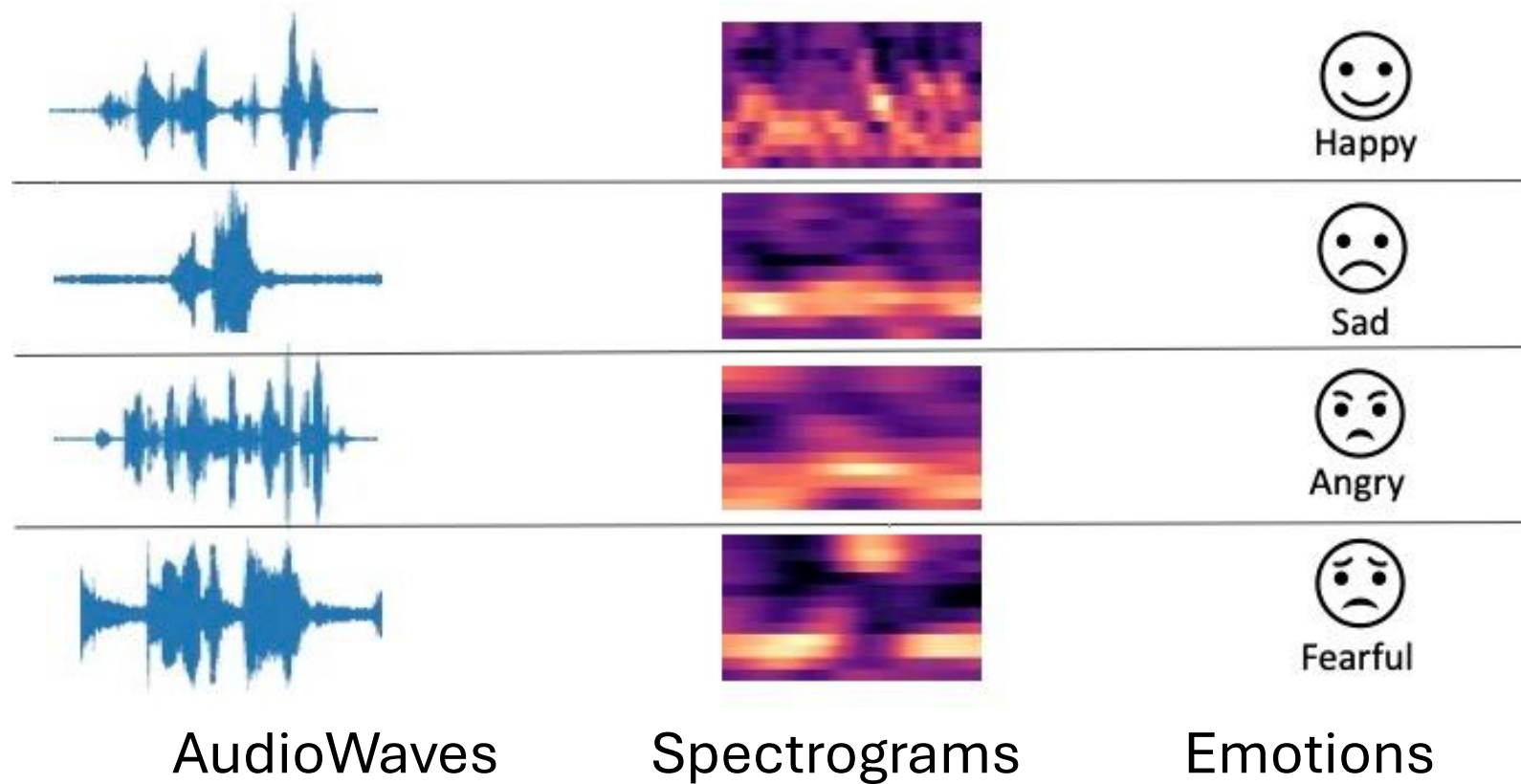
Validation of emotion measures

- **Tone Sentiment**

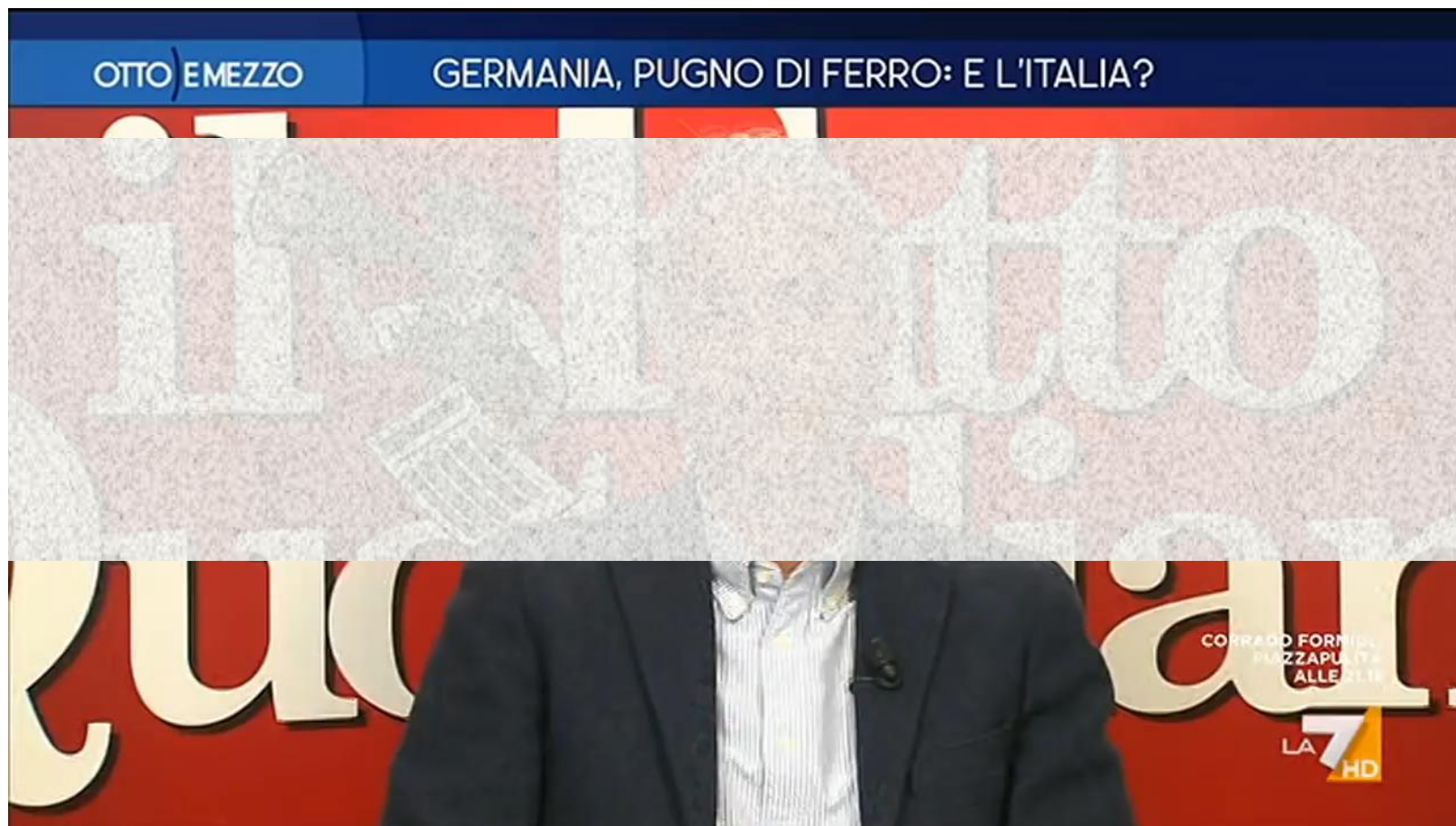
SpeechBrain (Ravanelli et al. 2021)

trained on IEMOCAP (accuracy 78%) [e.g. 12 hours of annotated actors conversations, in english]

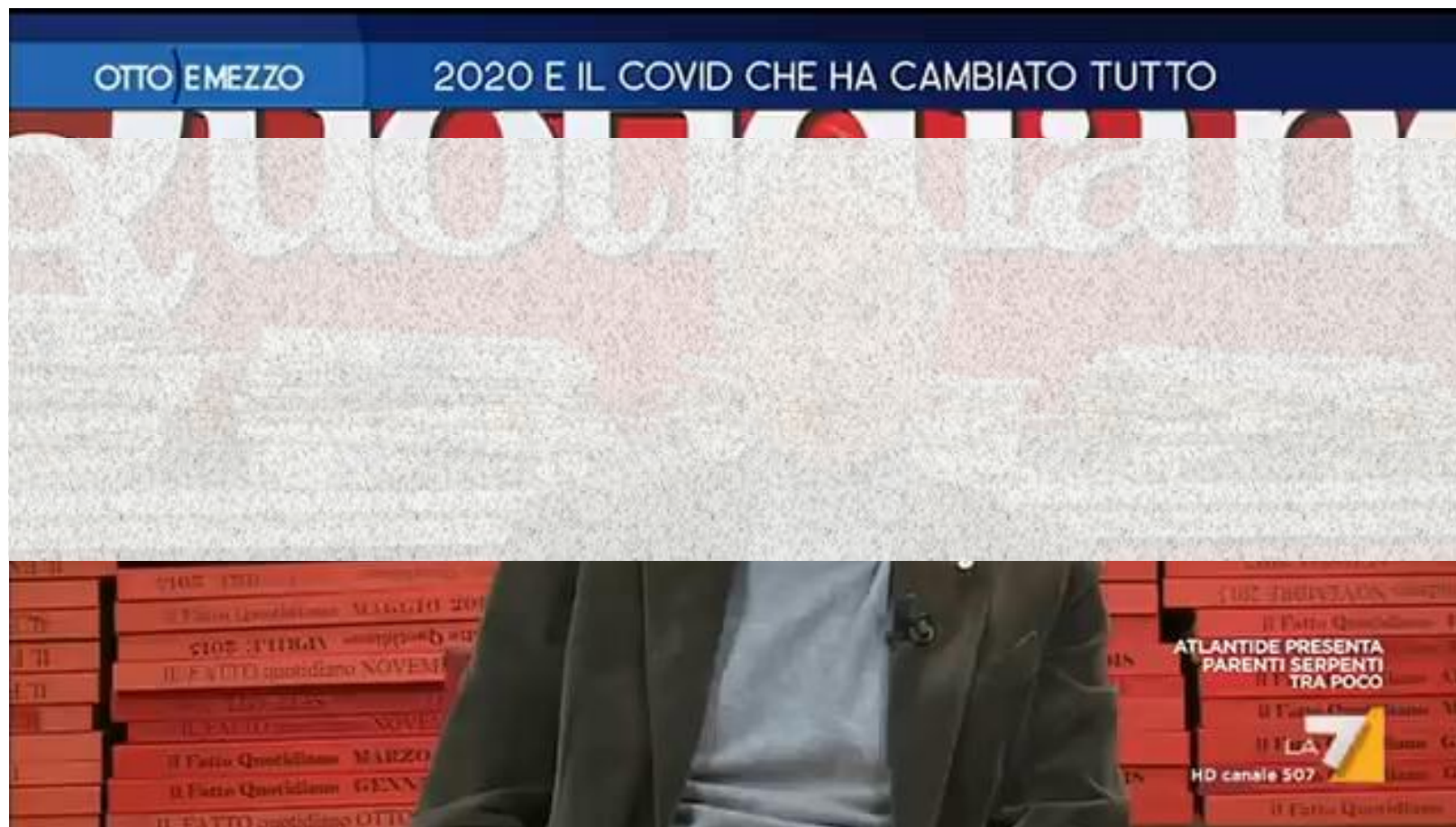
Tone



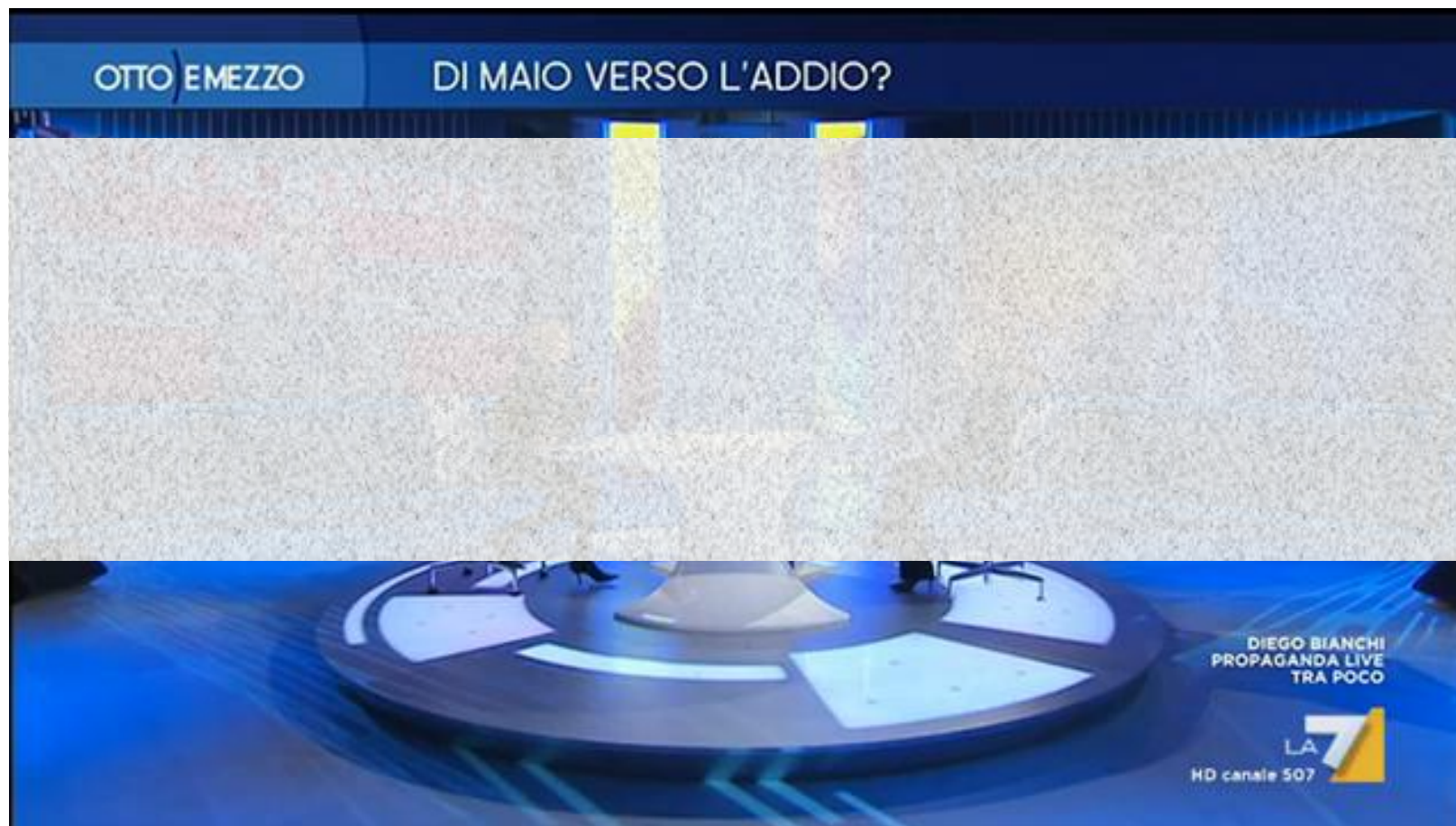
Tone Examples **Happy**



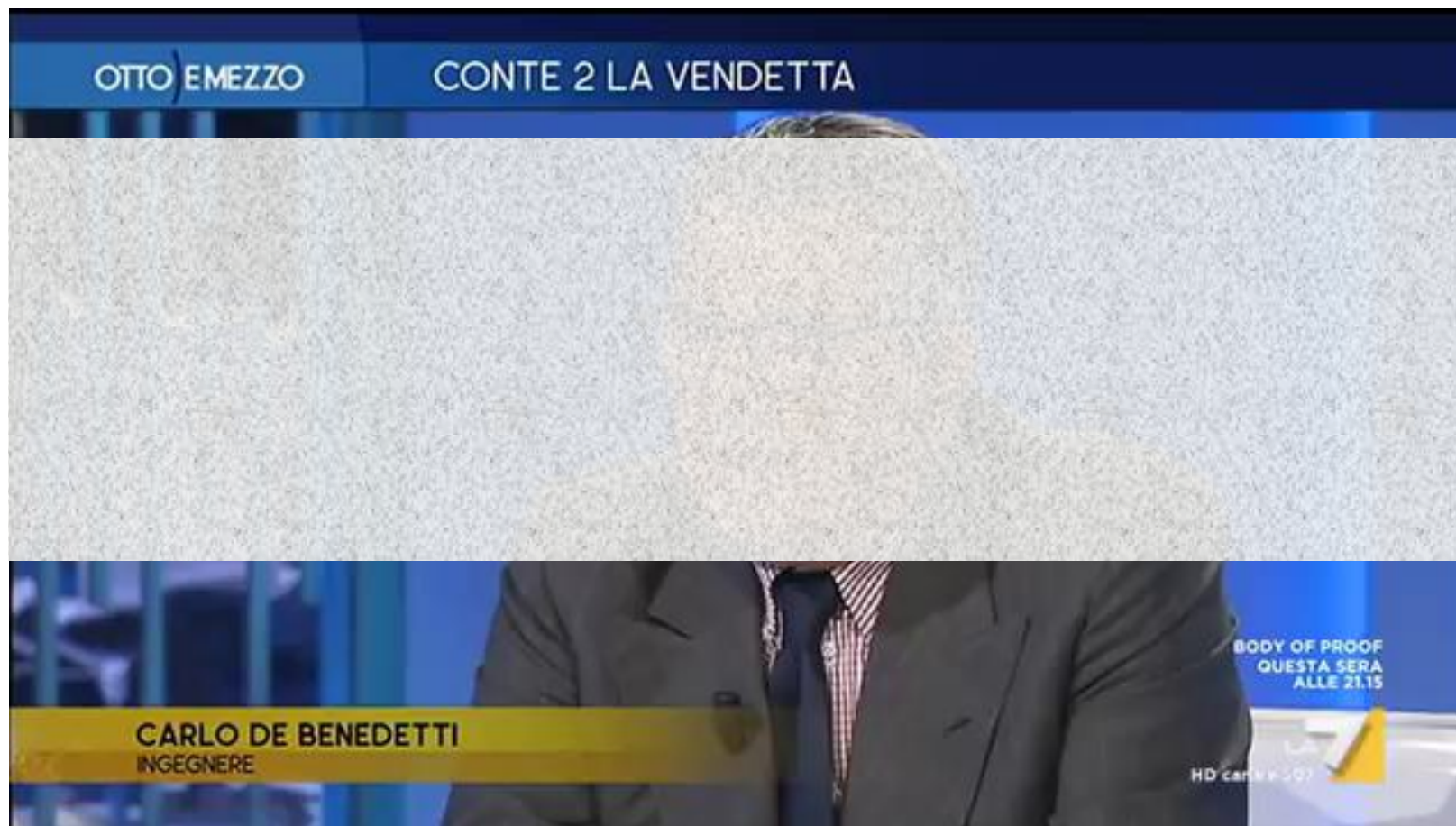
Tone Examples Neutral



Tone Examples **Anger**



Tone Examples **Sad**



Validation of emotion measures

- **Tone Sentiment** 
SpeechBrain (Ravanelli et al. 2021)
trained on IEMOCAP (accuracy 78%) [e.g. 12 hours of annotated actors conversations, in english]
- **How can we «internally» validate these measures? [e.g. without having to pay manual coders]**
- Italian bias → compare same movie scenes in Italian and English [work in progress]

Validation of emotion measures

- Face Emotion 😄 😞 😐
(High-Speed face Emotion recognition) from Savchenko (2023)
accuracy ~60-65% on AffectNet (8-7 classes) [e.g. 1 million of manually annotated pictures]

Face Emotions

Anger



Sadness



Neutral



Happiness



Anger



Sadness



Neutral



Happiness



Anger



Sadness



Neutral



Happiness



Type of speakers

- Journalists
 - With details of the journal (*i.e. La Repubblica, Il Giornale, L'Espresso, etc..*)
- Politicians
 - With details of the party (*i.e. Forza Italia, Partito Democratico, ..and “independent” – es: sardine*)
- Expert/**Pundits** (*i.e. all the others*)
 - With details of the profession (*i.e. Entrepreneur, University Professors, practitioners*)
- *For each speaker:*
 - Gender
 - Nationality

We use a ChatGPT prompt (through the API)

... we also manually review the ~1000 speakers

Prompt to classify speakers

Ciao,

ho una lista di personaggi famosi che hanno partecipato negli ultimi anni al programma "otto e mezzo" sul canale televisivo La7. Si tratta perlopiù di giornalisti, scrittori, virologi, politici, imprenditori etc... Per ognuno di questi personaggi, avrei bisogno di recuperare alcune informazioni.

In particolare, mi servono queste informazioni:

- L'orientamento politico: i valori possibili sono "left", "right", "center" e "m5s", ovviamente questi valori stanno per "sinistra", "destra", "centro" e "m5s". dove "m5S" sta per movimento 5 stelle.
- Il tipo di personaggio: che può avere i seguenti valori "journalist","expert" e "politician". Dove i "politician" sono tutti quelli che fanno politica professionalmente. E gli "expert" sono tutti quelli che non sono nè politici di professione ne giornalisti (come i virologi, gli imprenditori, etc...).
- Testata: è la testata giornalistica. Questo valore deve essere riempito solo se il personaggio in questione è di tipo journalist, altrimenti devi lasciare questo campo vuoto. Alcuni esempi possono essere "il fatto quotidiano", "il giornale","corriere della sera", etc..
- Partito: è il partito del personaggio. Questo valore deve essere riempito solo se il personaggio in questione è di tipo "politician", altrimenti devi lasciare questo campo vuoto. Alcuni esempi possono essere "fratelli d'italia", "partito democratico", etc...
- Professione: è la professione del personaggio. Questo valore deve essere riempito solo se il personaggio in questione è di tipo "expert", altrimenti devi lasciare questo campo vuoto. Alcuni esempi di questo valore possono essere "entrepreneur", "phisician", etc...
- Solo se sei fortemente indeciso, ti chiedo di lasciare al posto del valore un punto interrogativo "?".

Questo è un esempio:

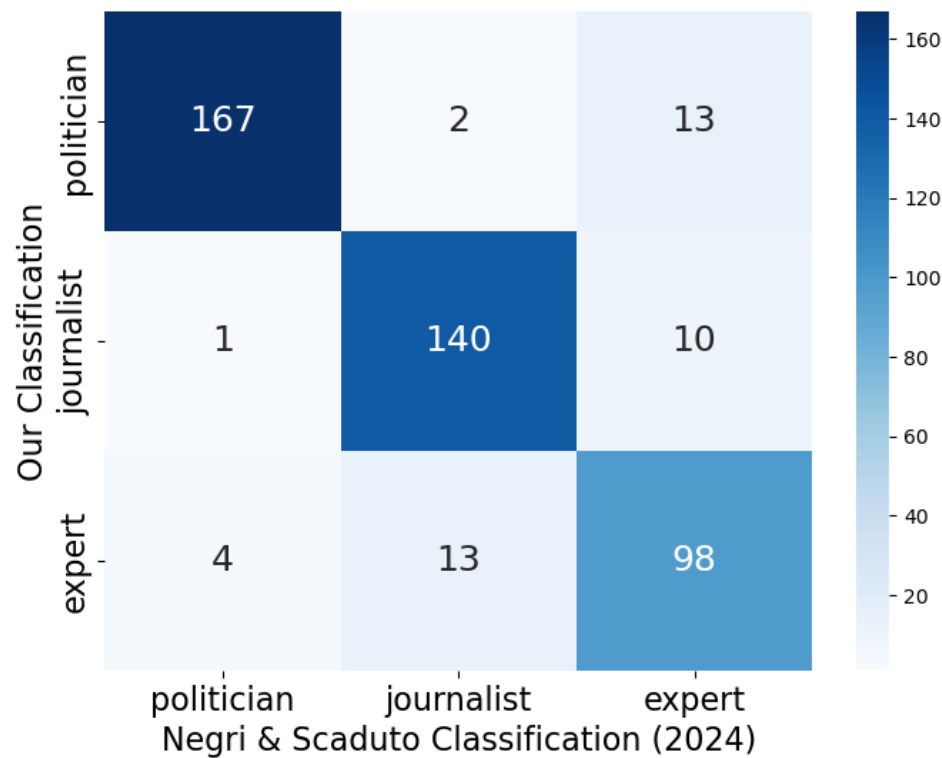
nome personaggio;orientamento politico;tipo personaggio;partito;testata;professione
 lilli gruber;left;journalist;;la7;
 paolo pagliaro;left;journalist;;la7;
 marco travaglio;left;journalist;;il fatto quotidiano;
 massimo giannini;left;journalist;;la stampa;
 andrea scanzi;left;journalist;;il fatto quotidiano;
 beppe severgnini;center;journalist;;corriere della sera;
 massimo cacciari;left;expert;;;philosopher
 antonio padellaro;left;journalist;;il fatto quotidiano;

We instruct ChatGPT trough an example and ask it to do the rest of the job for us

We manually review all the classification

Example prompt for classifying TV speakers

We compare our classification with that of Scaduto and Negri (2024). **They appear quite consistent.**

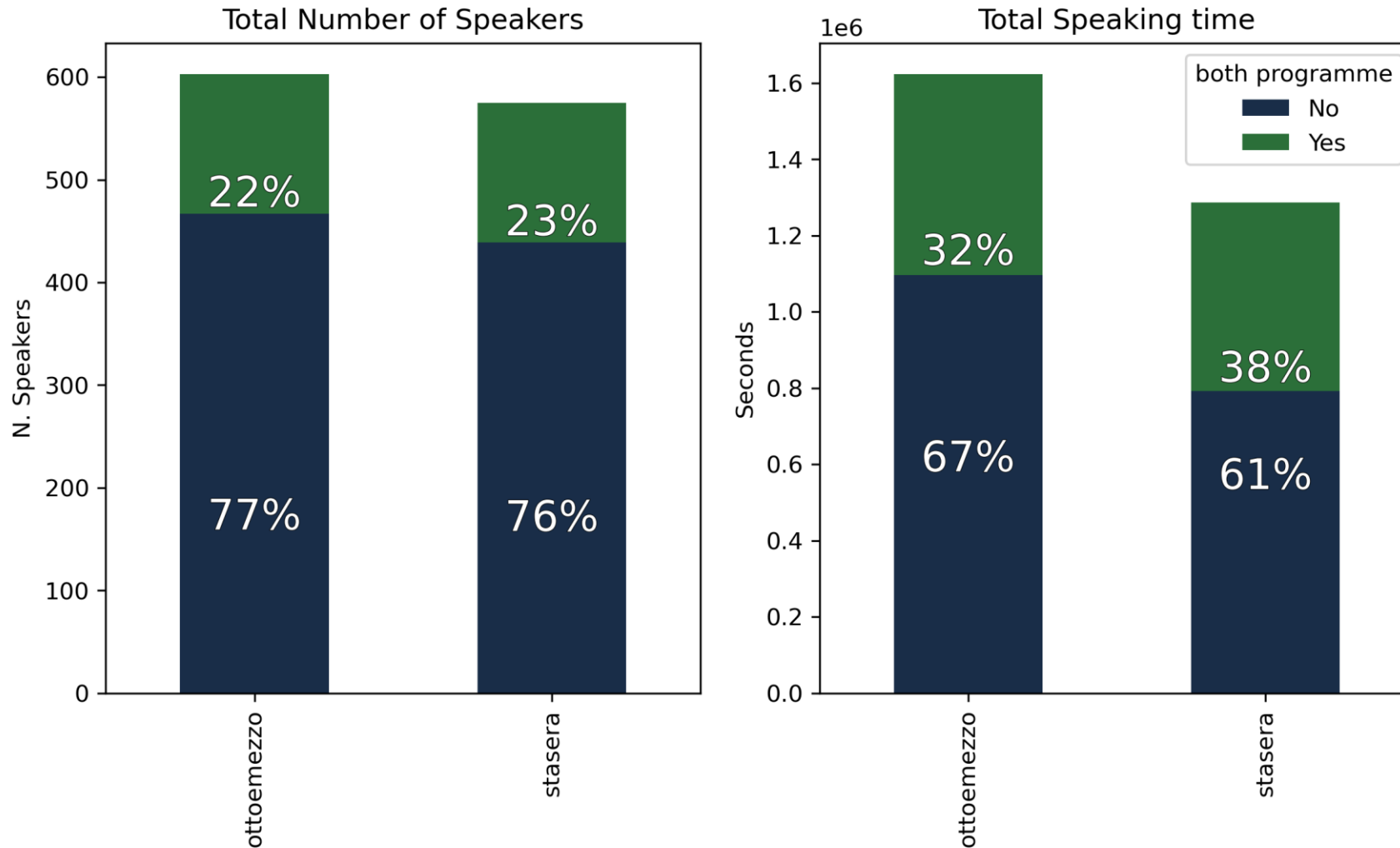


Gaetano Scaduto, Fedra Negri

The Pundit Paradox. Exploring the Mismatch between Supply and Demand in Italian Political Talk Show Guests

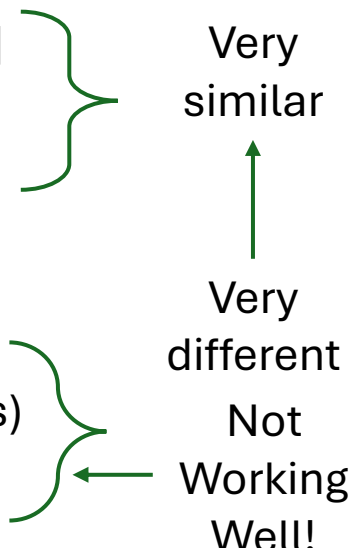
pp: 309-334 | DOI: 10.3270/115244

Competition – Speakers

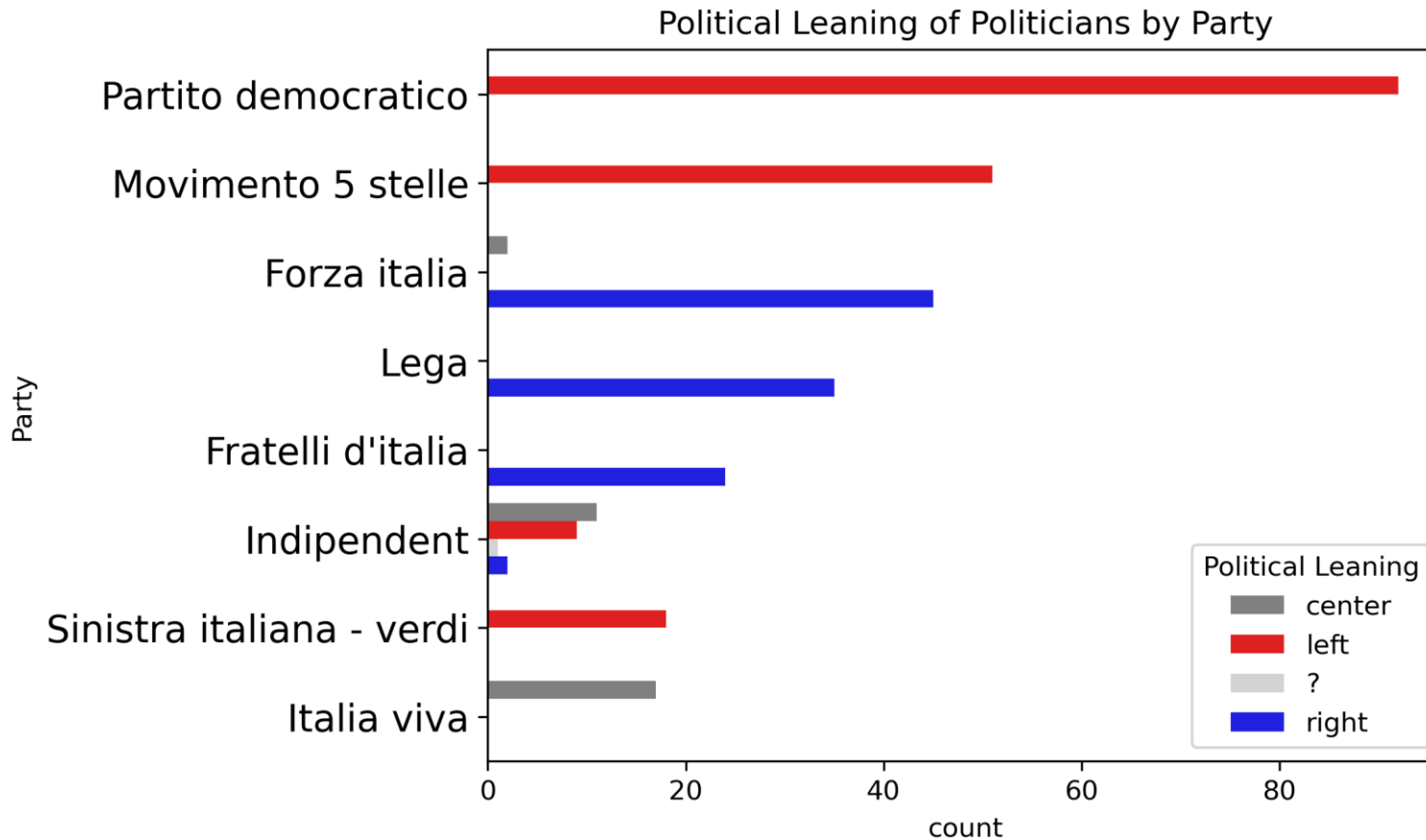


- A group of 136 speakers are present in BOTH programme and occupy 1/3 of the space.

Political Leaning

- For each speaker, we also assign a **political leaning label**:
 - Left, Right and Center
 - While for politicians we can use party affiliation, for other speakers this might be a debatable and sensitive issue
 - We do it:
 - Manually (based contextual information on their public declarations and affiliations)
 - With a ChatGPT prompt
 - With “talk-like” supervised model:
 - A fine-tuned BERT model (finetuned on parliamentary speech and tv show speeches)
 - A pre-trained BERT model (on tweets)
- 
- The diagram on the right side of the slide illustrates the outcomes of different methods for assigning political leaning labels. A green curly bracket groups the 'Manually' and 'With a ChatGPT prompt' methods, with an arrow pointing to the text 'Very similar'. Another green curly bracket groups the two supervised model methods ('With “talk-like” supervised model'), with an arrow pointing to the text 'Very different' and 'Not Working Well!'. The text 'Working Well!' is positioned below 'Not Working Well!'.

Political leaning by type of speaker: Politicians



This is pretty much in line with *standard* international classification (party manifesto, etc.), where left-wing parties are:

- *Partito democratico*
- *Movimento 5 Stelle*
- *Sinistra Italiana –Verdi*

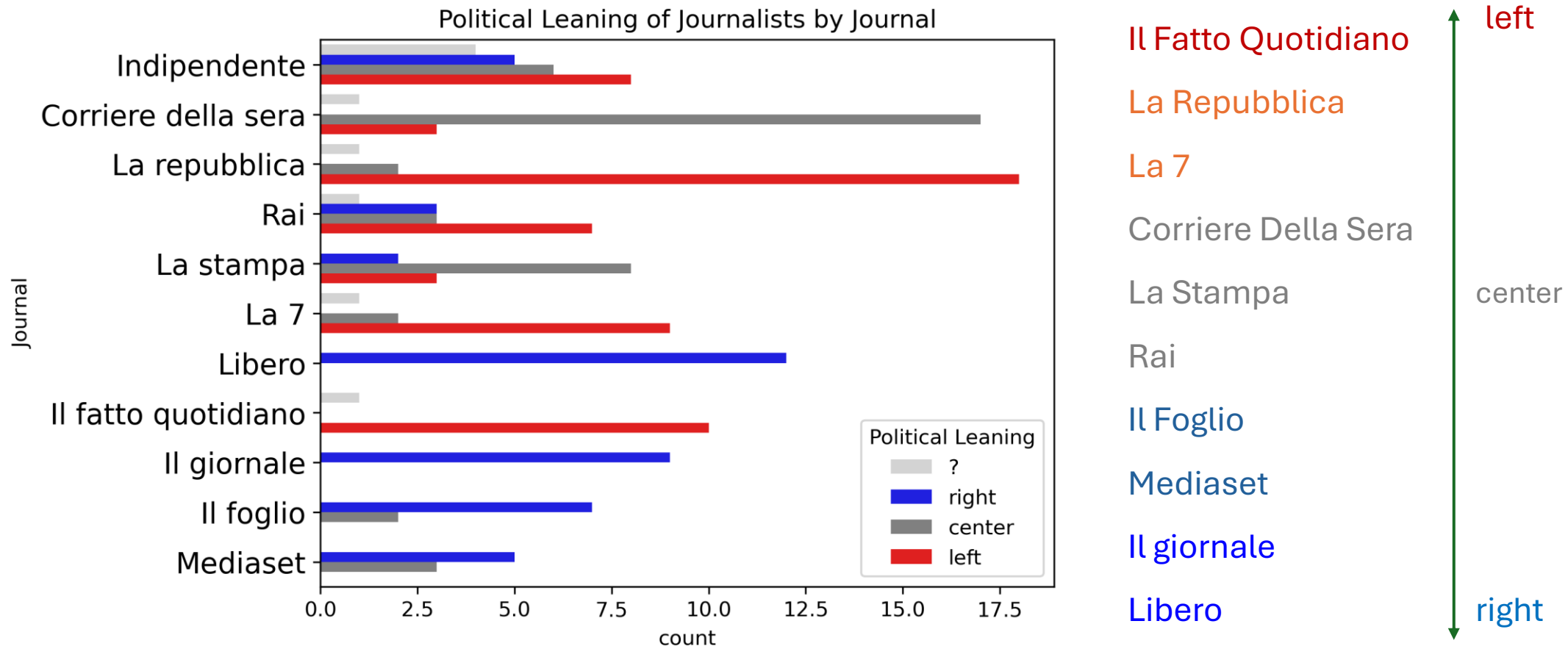
And right-wing parties are:

- *Forza Italia*
- *Lega*
- *Fratelli d'Italia*

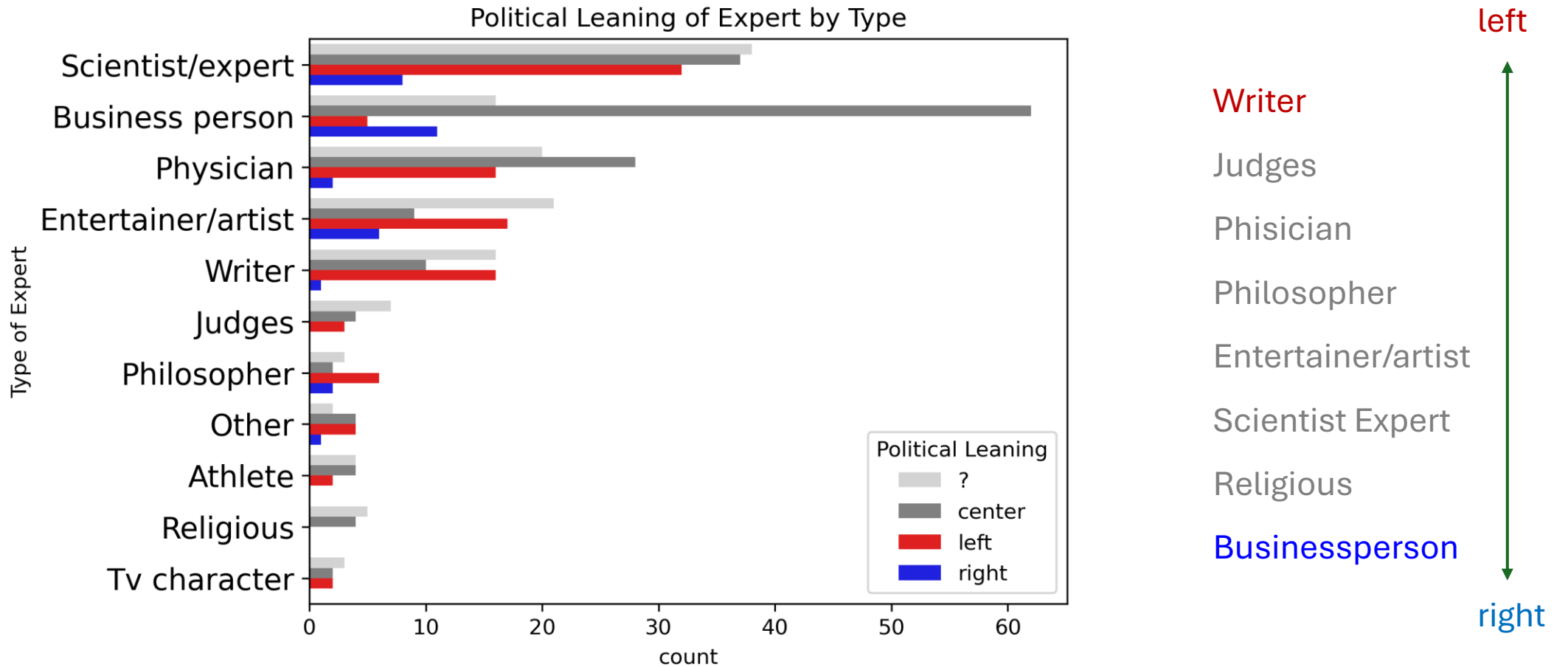
And center-wing parties are:

- *Italia Viva and Azione*

Political leaning by type of speaker: Journalists



Political leaning by type of speaker: Experts

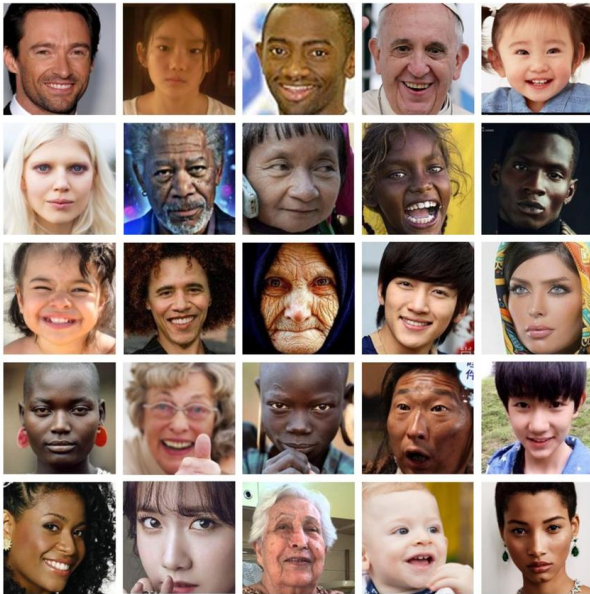


e.g. some example of “left-wing” experts are *Carlo Rovelli, Emiliano Brancaccio, Nadia Urbinati*. Some example of “right-wing” experts are *Paolo Scaroni, Gianfranco Vissani and Paola Tommasi*

Validate...validate

- Is this validation process enough? **Probably not!** Remaining concerns, especially wrt to sentiment measures.

Trained on this:



Predict on this:



Validate...validate...validate

- Remaining solution → Run a survey!



Tone validation
survey

<https://forms.gle/TGwpryRCQq1rMfM7>



Face validation
survey

<https://forms.gle/fYdA7XSoJiFrJPJv8>

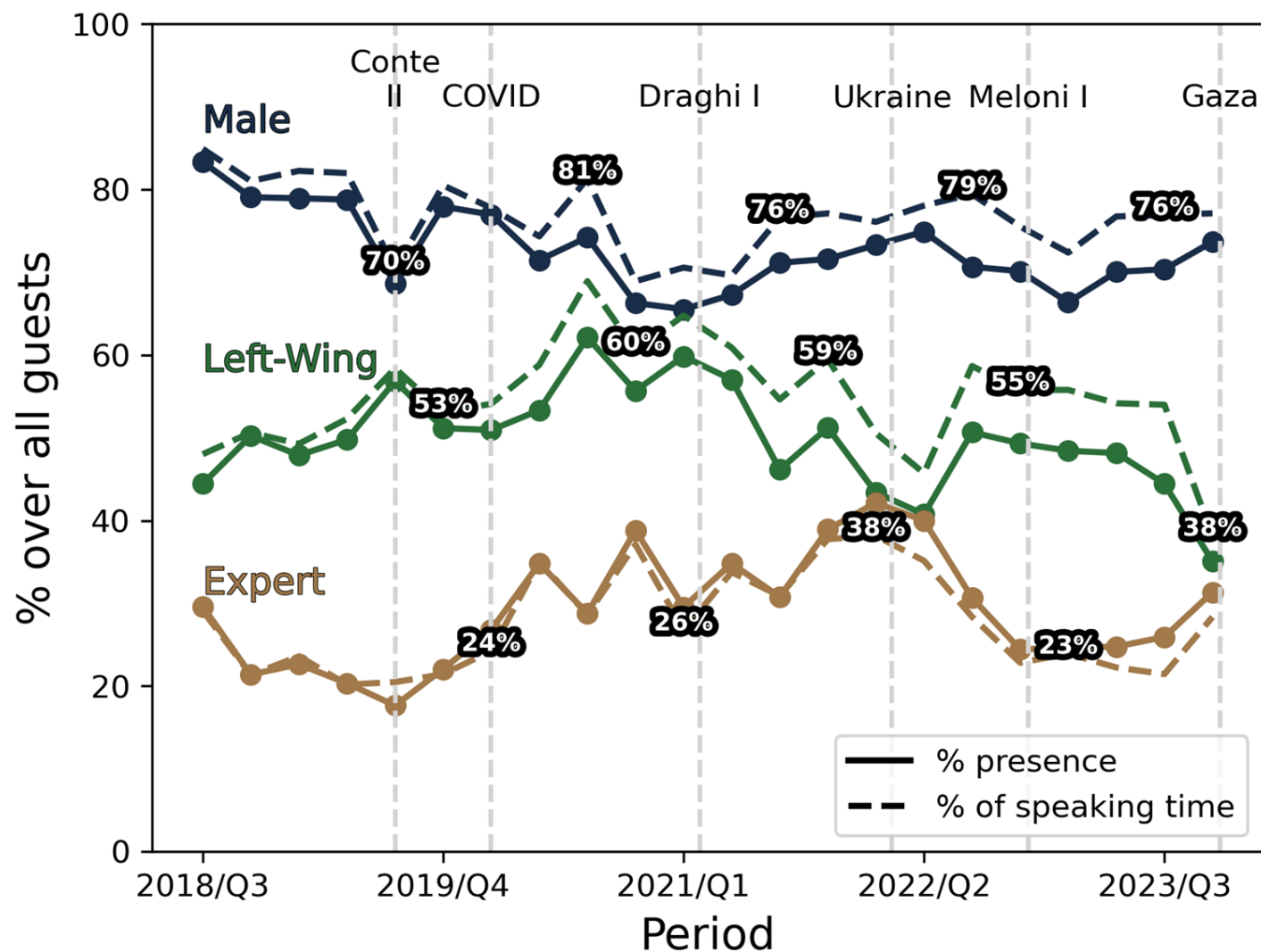


Speaker political
leaning survey

<https://forms.gle/NRxeZiZiBciAmBRf6>

Summary statistics

Summary statistics – Otto e Mezzo

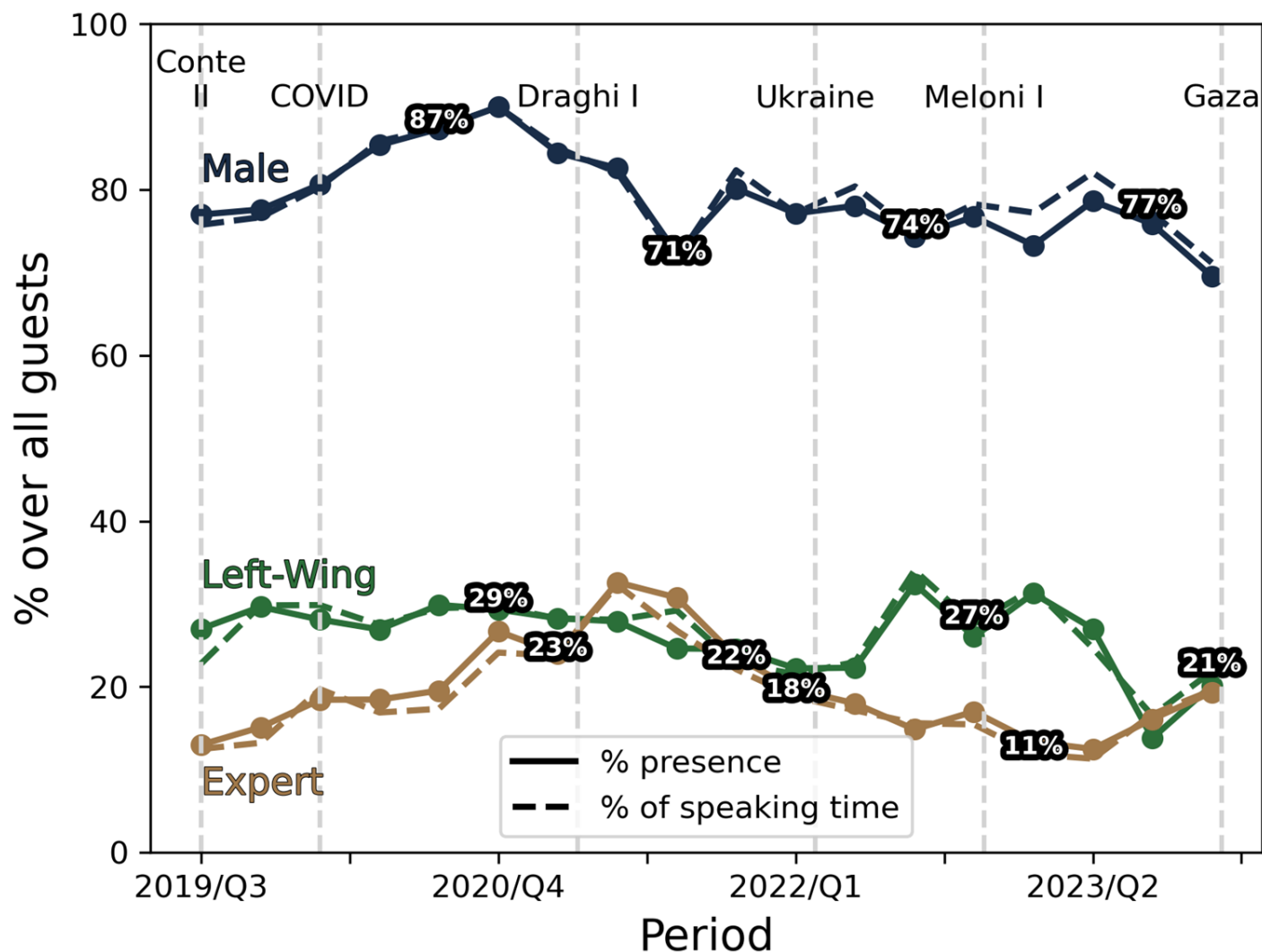


- **Males** tend to be **more present** and **speak more**
- A decline of **Left-Wing** speakers after **the Draghi government**
- The rise of **experts** during **the COVID-19 pandemic** (with *fair* speaking time)

Males in Italian Parliament = 70%

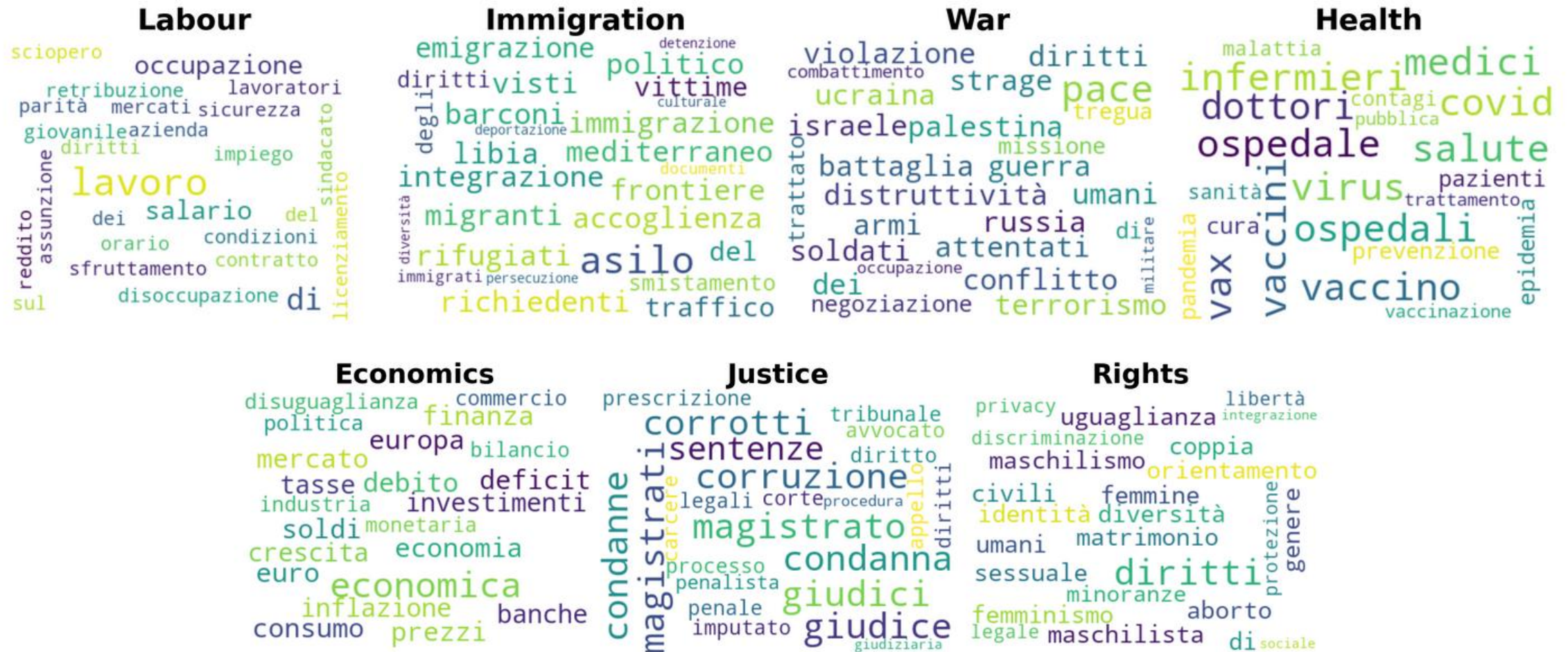


Summary statistics – Stasera Italia

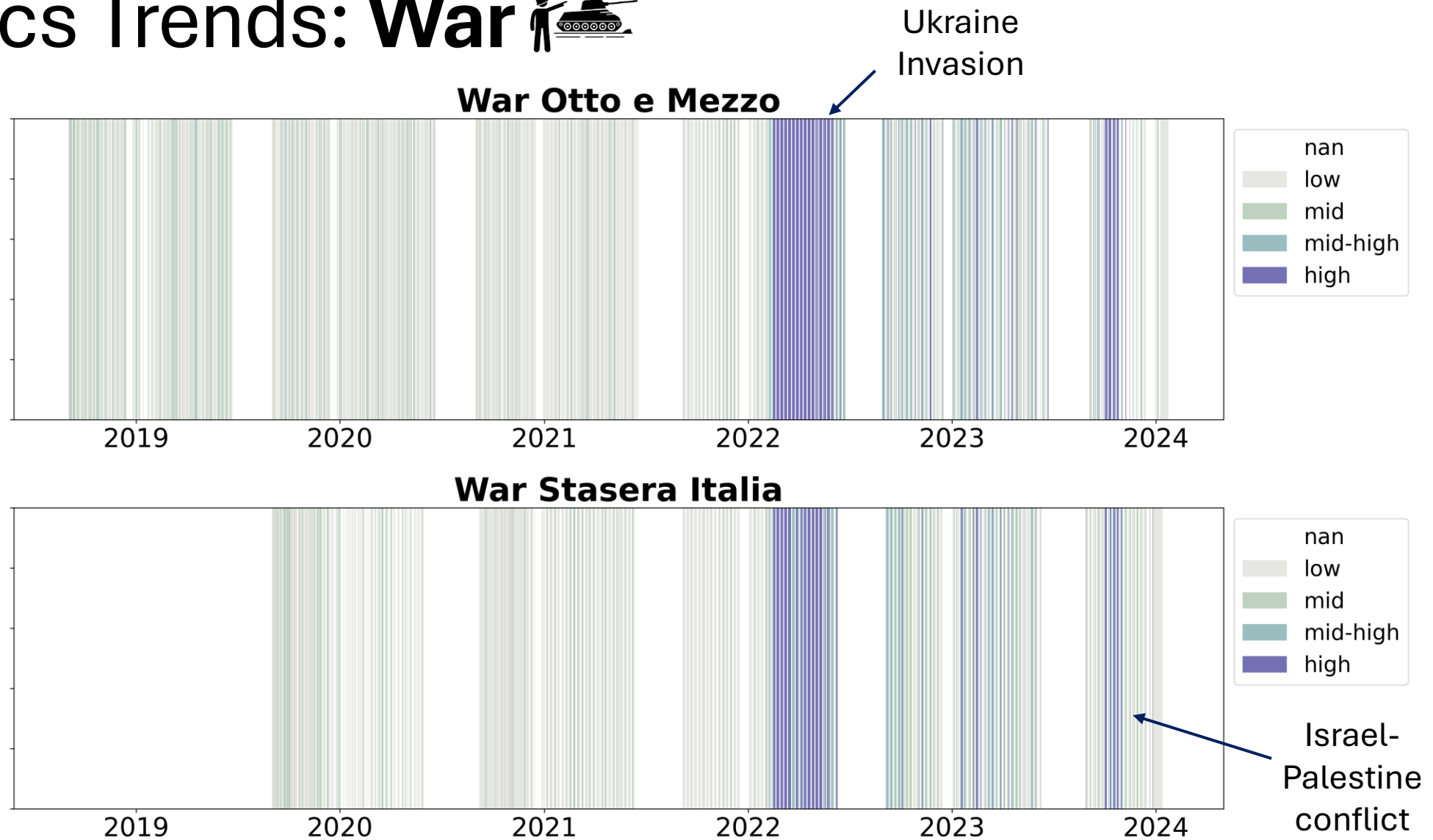


- Males tend to be more present and speak more (although less than in 8 e mezzo)
- Left-Wing have much less share
- The rise of experts during the COVID-1 pandemic (with *higher* speaking time)

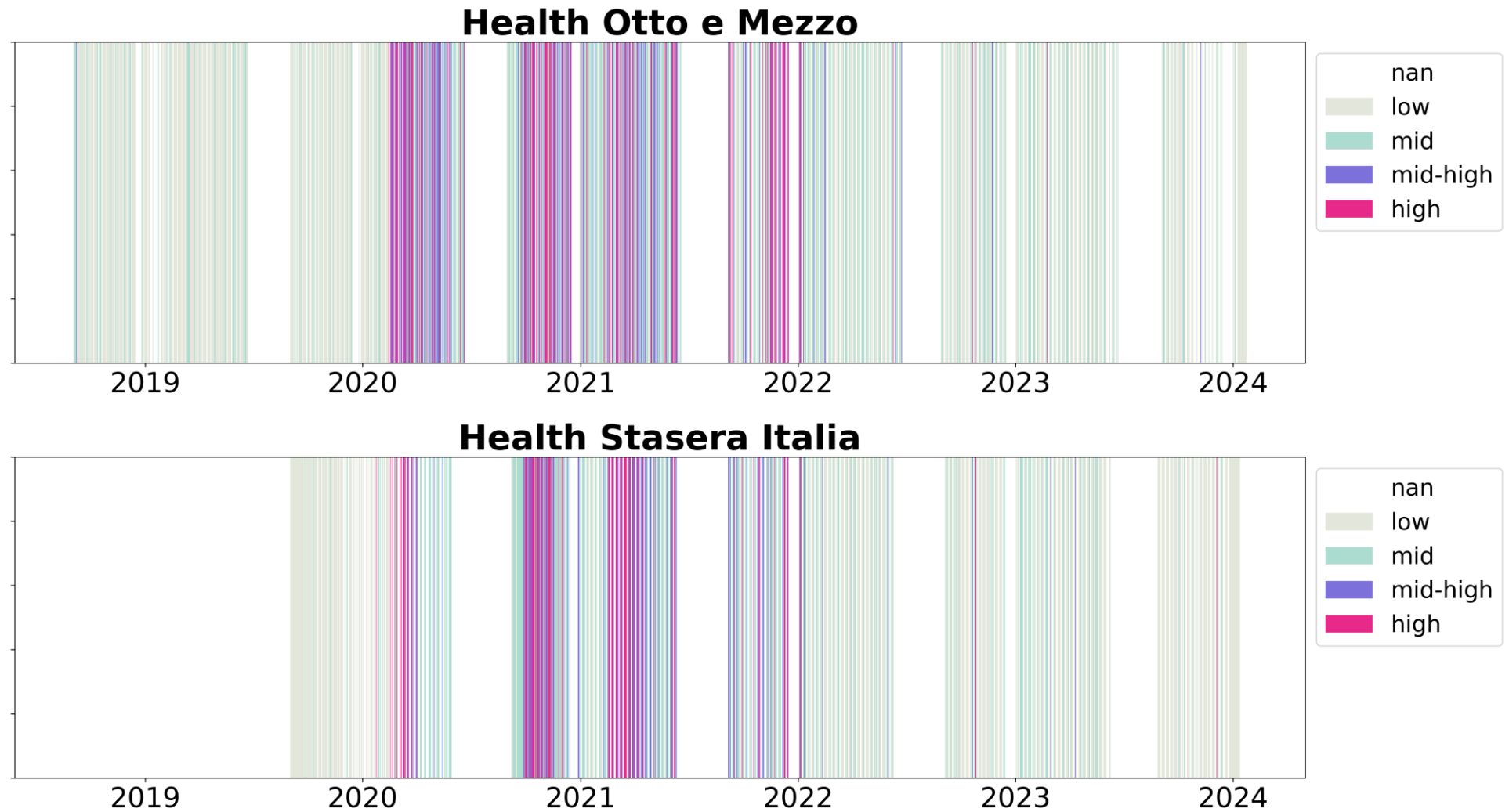
Who speaks about what? – Topics Dictionary



Topics Trends: War

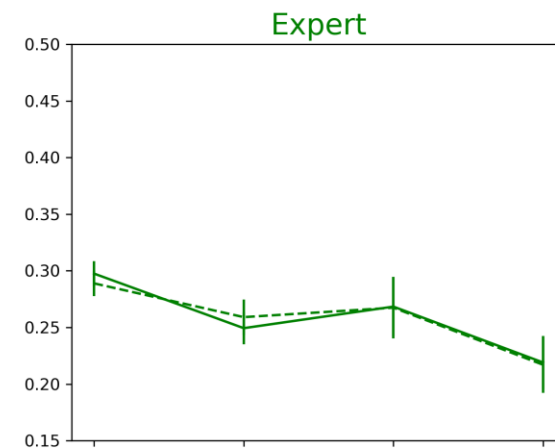
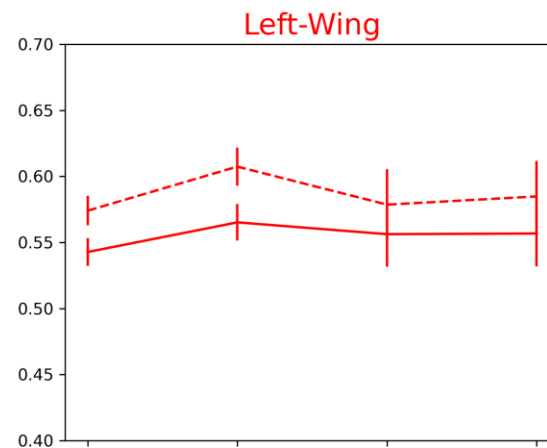
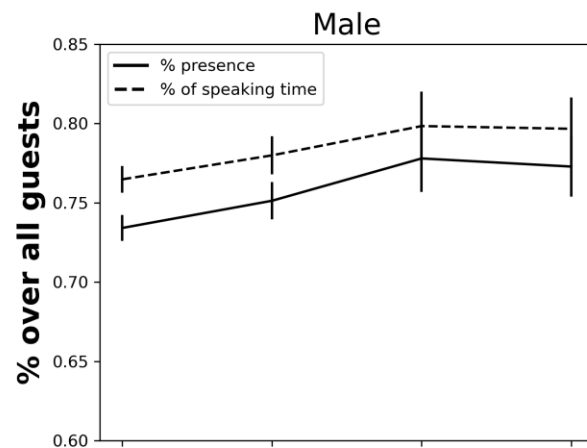


Topics Trends: Health

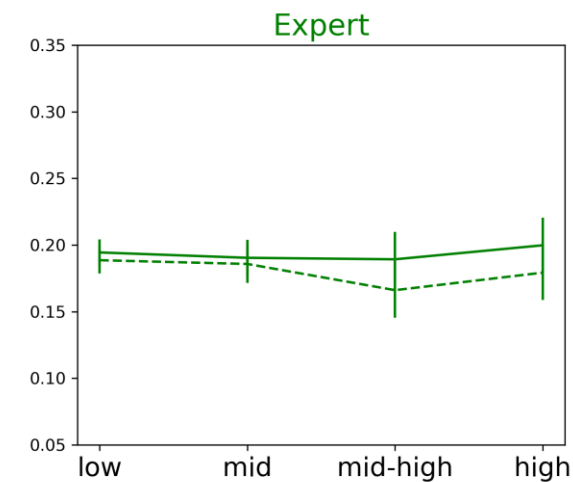
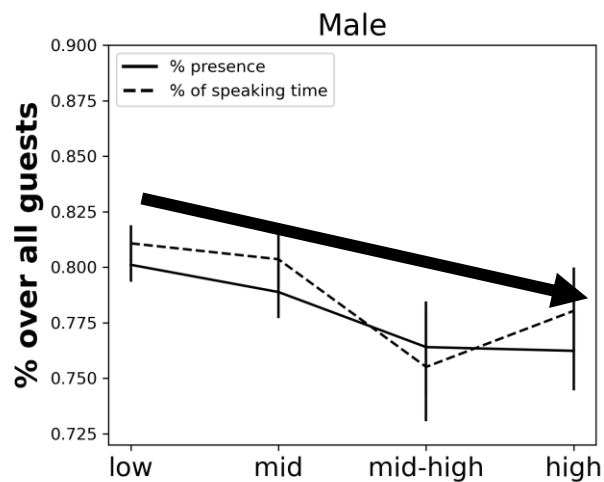


Who speaks about what?

Labour (Otto e Mezzo)



Labour (Stasera)

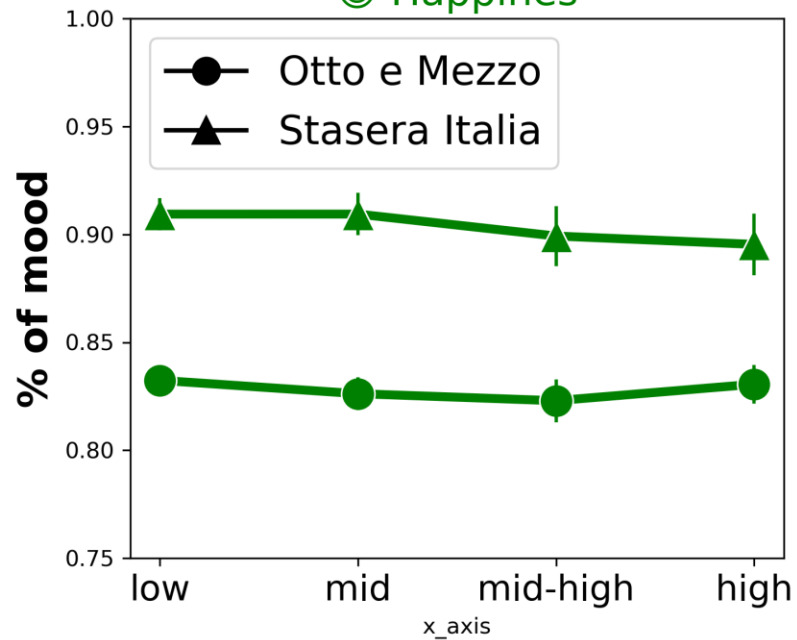


Topic presence in the discussion

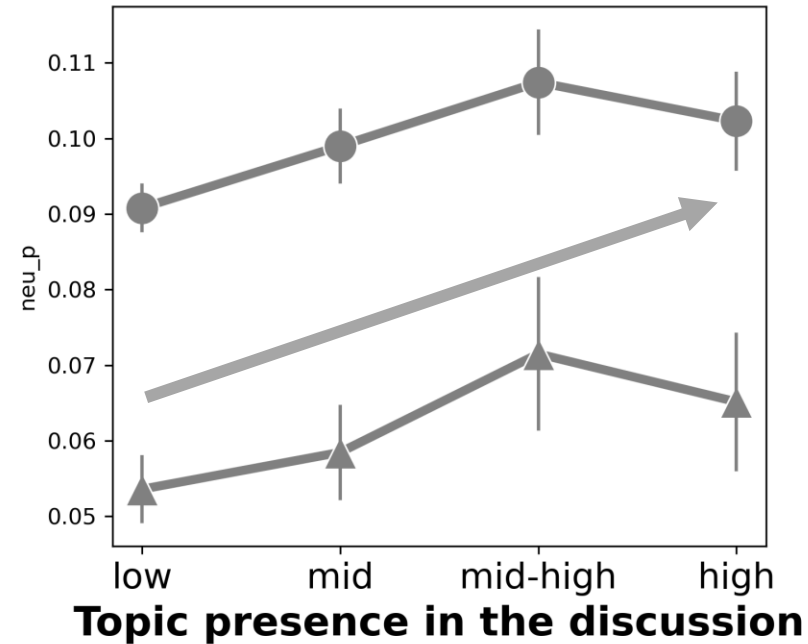
Tone and Topics



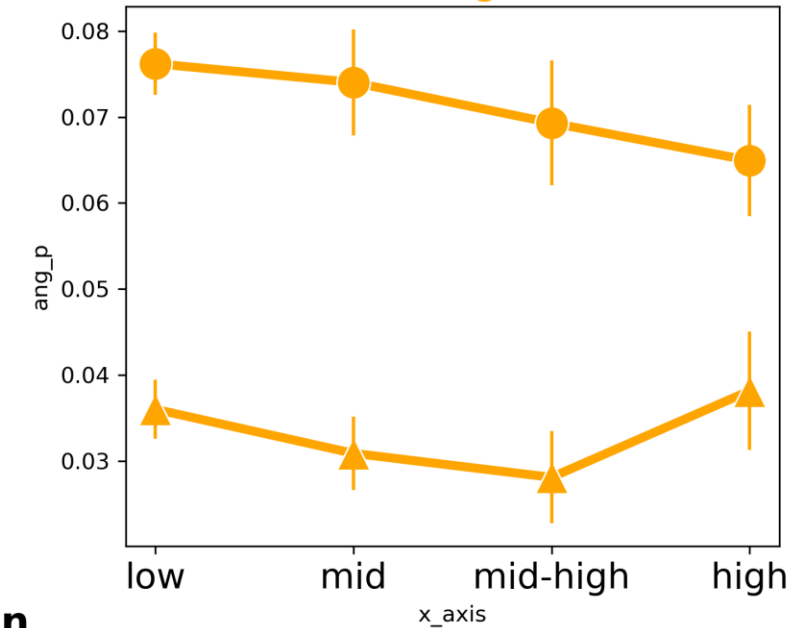
😊 Happiness



😊 Neutral



😡 Anger



Auditel Data

- Proprietary data from Auditeltm, a consortium of Italian Network that traces TV viewership on a representative sample (16k families) of Italian citizens.
- Tracking is made using a “meter” connected to the device (i.e. it’s **not** a survey)
- Minute by Minute data
- Breakdown by Gender



- Used also in Gambaro et al. (2023, NBER), Castriota et al. (2023, Int.Journ.HealtEconMana)

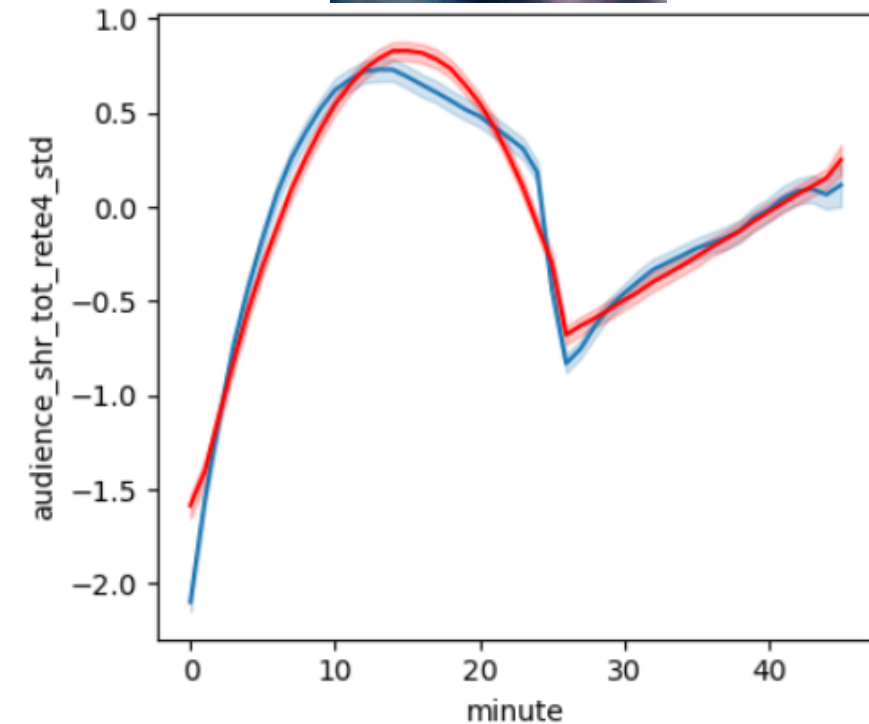
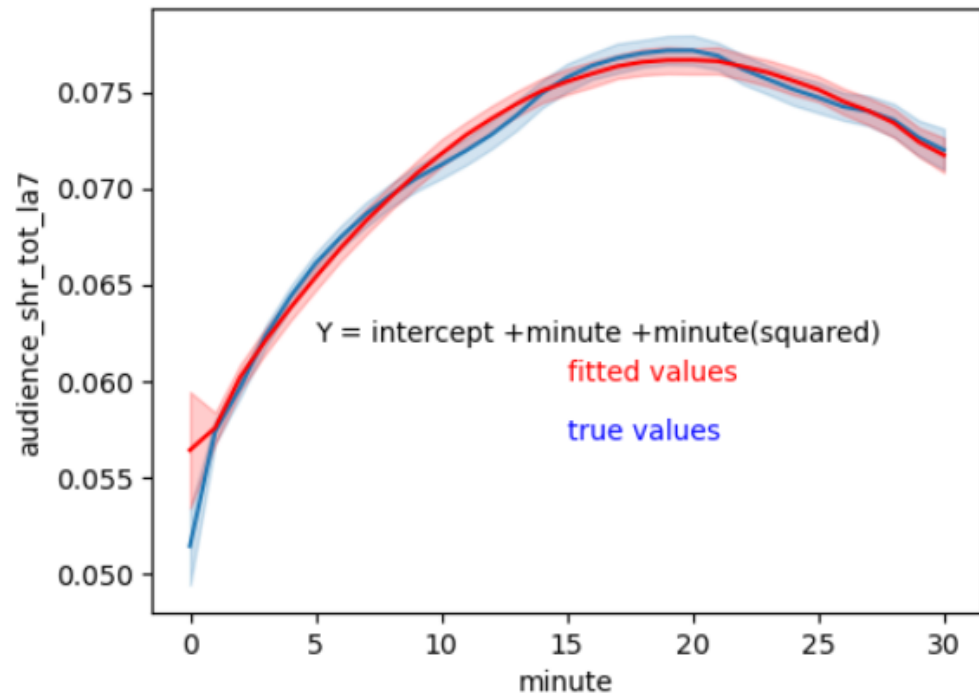
Audience Regression

Quadratic
Time trend

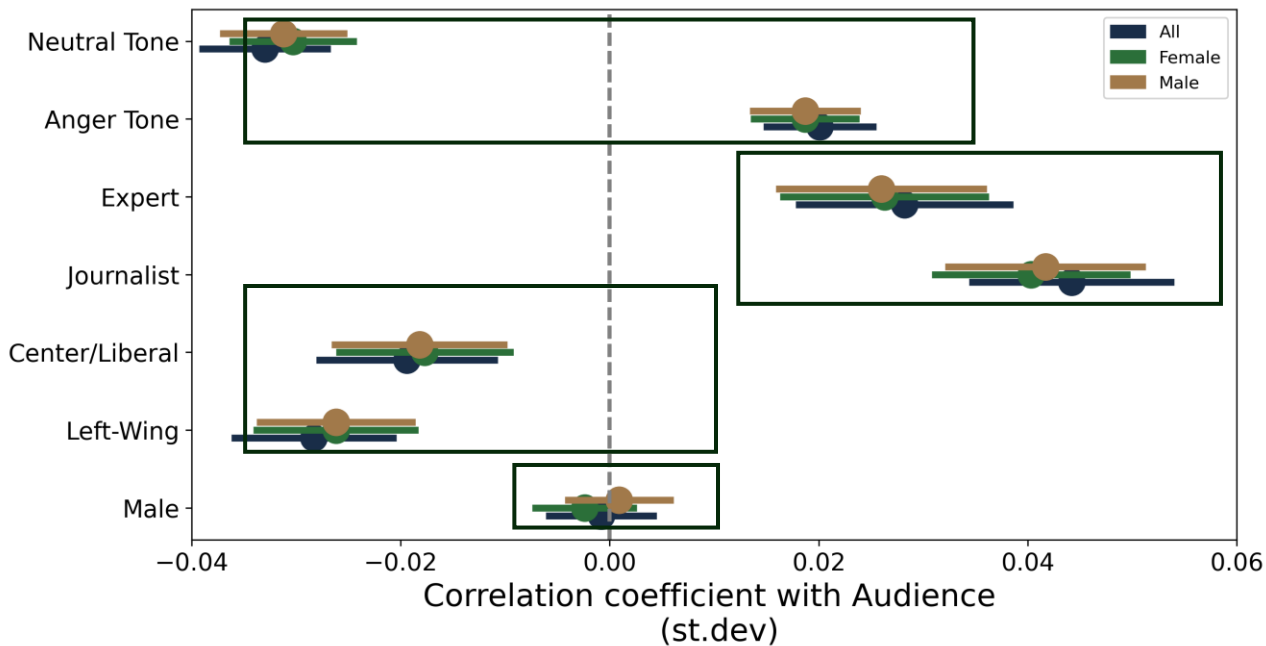
Break Stasera –
Time Trend

Episode fix
effect

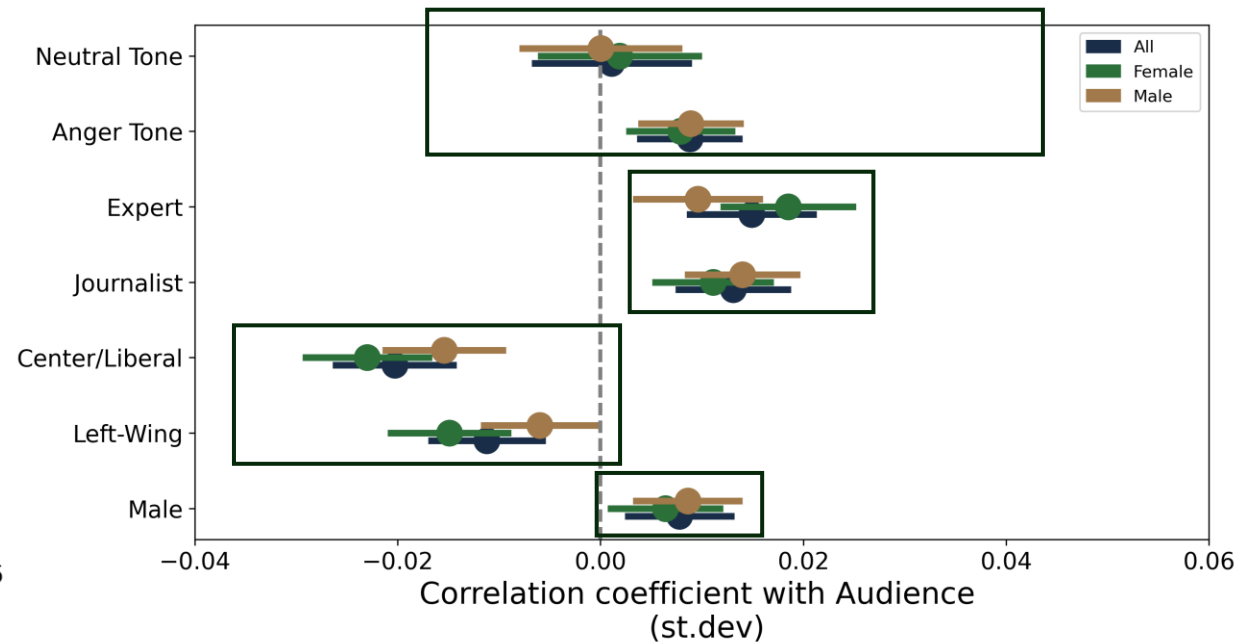
$$Audience_{e,t} = \beta_0 + \beta_1 Gender_{e,t} + \beta_2 Left_{e,t} + SpeakerType_{e,t} + Minute_t + Minute_t^2 + Break_t * (Minute_t + Minute_t^2) + \sum_i^{i-1} \gamma_i Episode_e^i$$



Baseline Descriptive Result



1. Anger Tone → Higher Audience
2. Expert and Journalists (vs. Politicians) → Higher Audience
3. Left-Wing → Lower audience
4. Male Speaker → Higher Audience



Note that **attention** (e.g. audience) is different from **satisfaction**! (*Stanca et al. 2013*)

Face emotion of the “others”



The Speaker

The Other



The Speaker

The Other

Objective: to study **non-verbal communication** to different speakers

Face emotion of the “others”



The
Speaker

The
Other

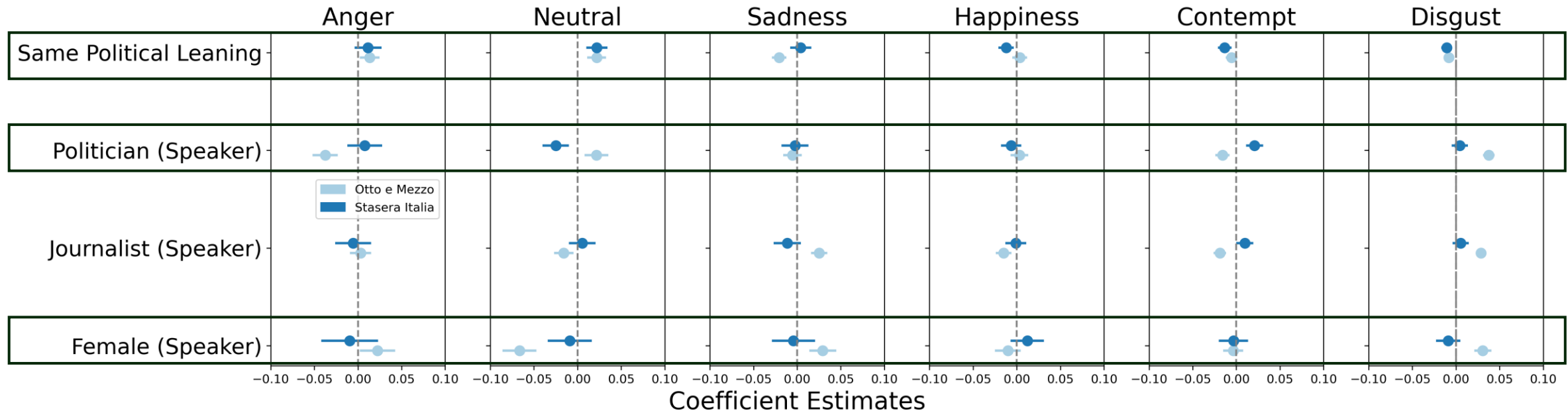
We run a simple regression to estimate the determinants of the emotion of the “other”

$$Emotion_{other,i} = Type_{speaker,i} + Sex_{speaker,i} + SamePolLeaning_{speaker,i} + \dots + \emptyset_{other,i}$$



Controlling for characteristics of the other

Face emotion of the “others”



- Same political leaning leads to Less Disgust, More Neutrality
- Politician Speaker tend to garner disgust in *otto e mezzo* (more contempt in *stasera italia*)
- Female speaker leads to higher disgust, anger, and sadness in *otto e mezzo* (null correlations in *stasera italia*).

Note these **are very preliminary results**.

Summing Up

- **Are we really learning something new?** Maybe not too much at this stage.
- However, these methods might offer **more capacity and potential** to study a **wide range of theoretical issues**, for example: *gender representation, political leaning and media bias, framing effects, agenda setting, audience polarization, expert influence, etc.*
- **The ubiquity of video** will make the development of these kind of methods necessary for communication scholars.



Tone validation
survey

<https://forms.gle/TGwpryRCQq1rMfM7>



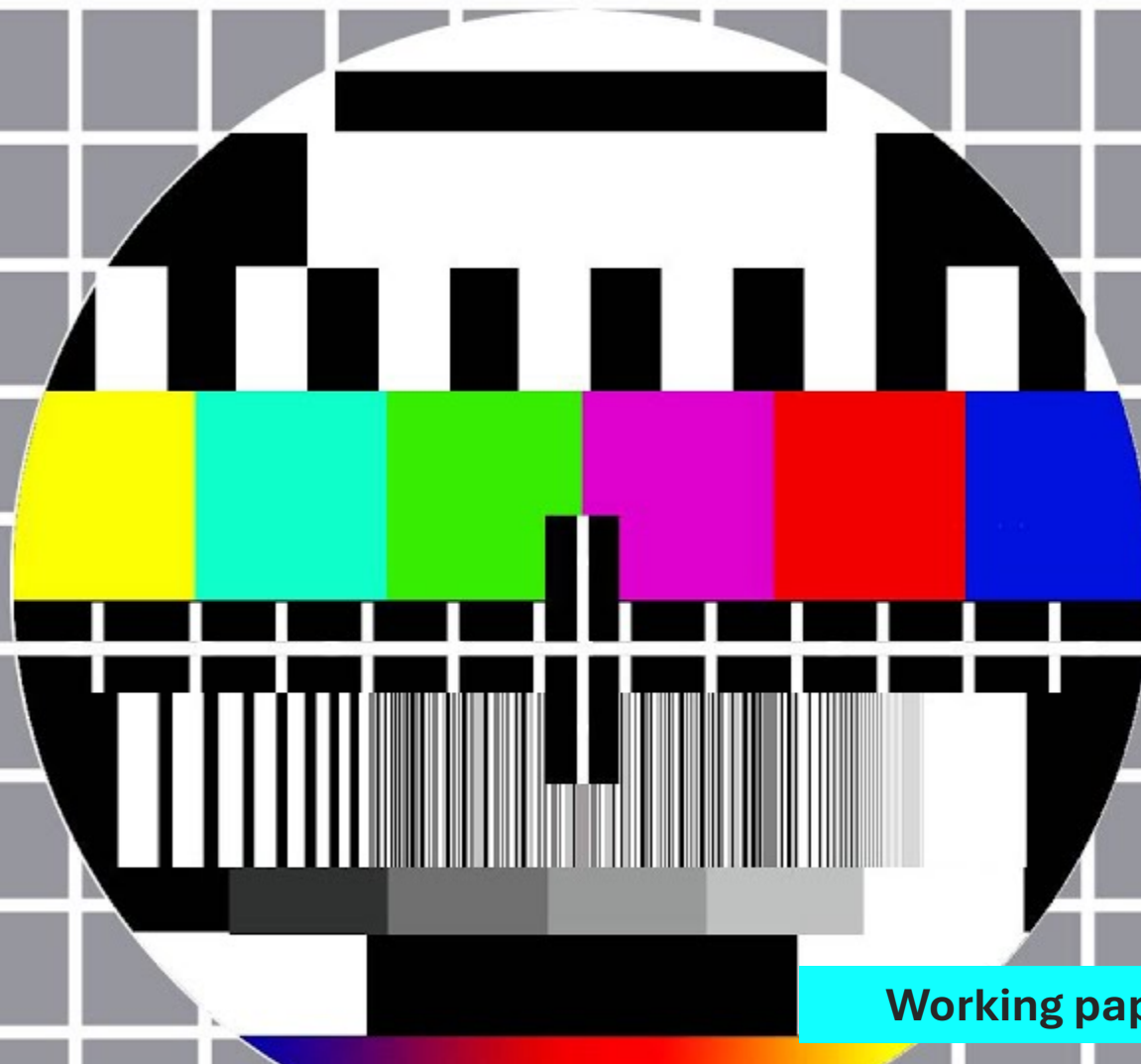
Speaker political
leaning survey

<https://forms.gle/NRxeZiZiBciAmBRf6>



Face validation
survey

<https://forms.gle/fYdA7XSoJiFrJPJv8>



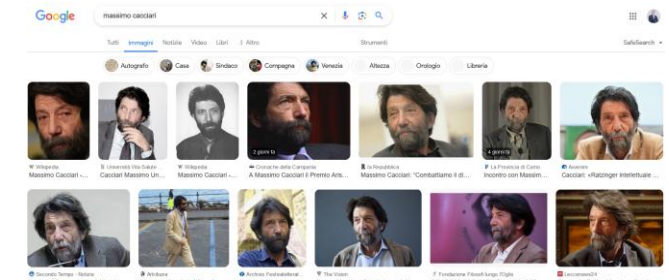
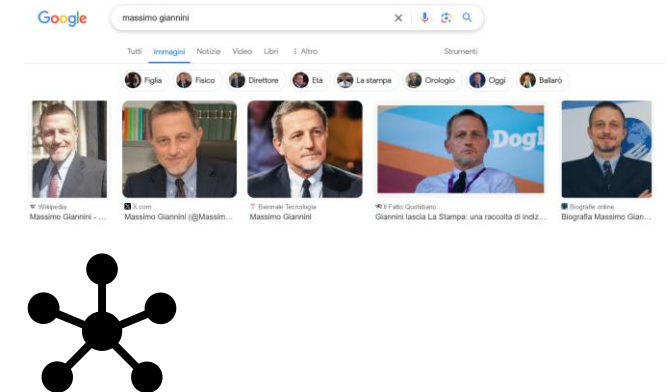
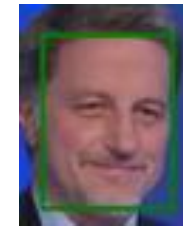
Working paper→

email: gabriele.pinto@uniroma1.it
slides: www.gabrielepinto.com/presentations



Face Recognition

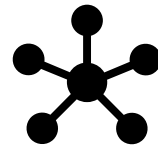
- We design a pipeline that compare faces in the video with a faces of people that match google image searches (note we already have from transcripts “true” name and surname of speakers in each episode)



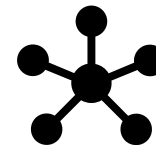
Face Recognition



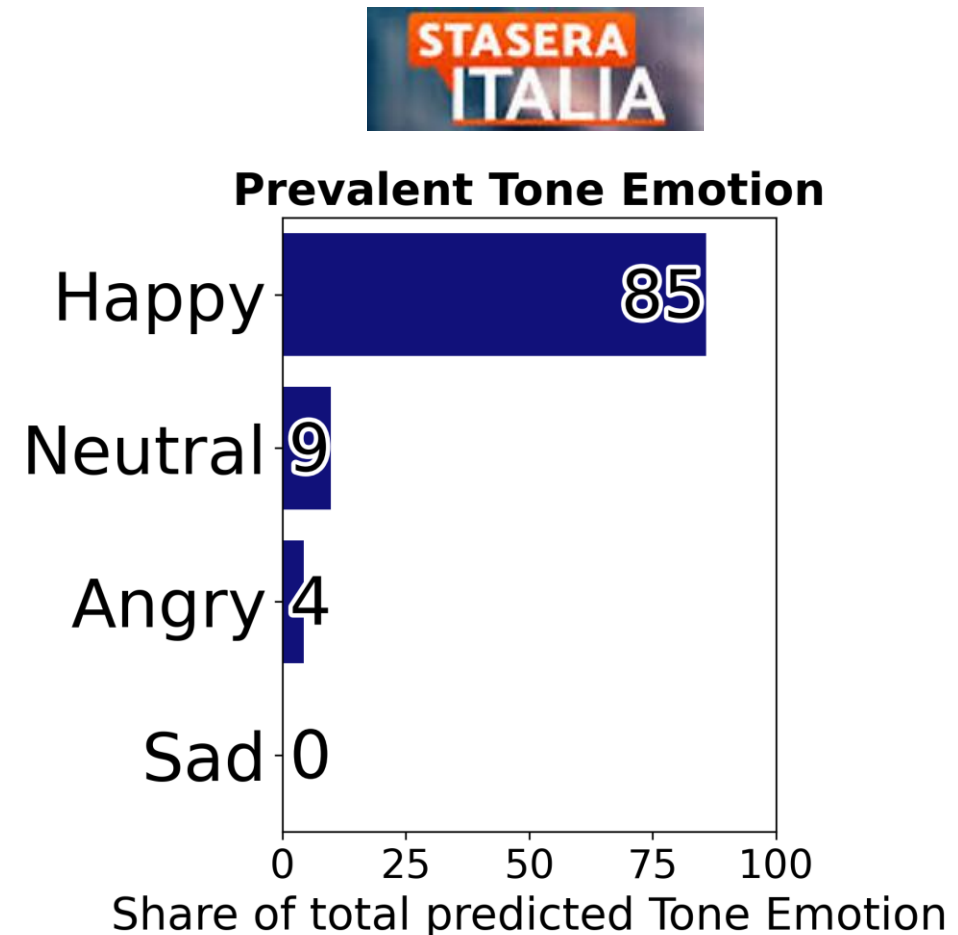
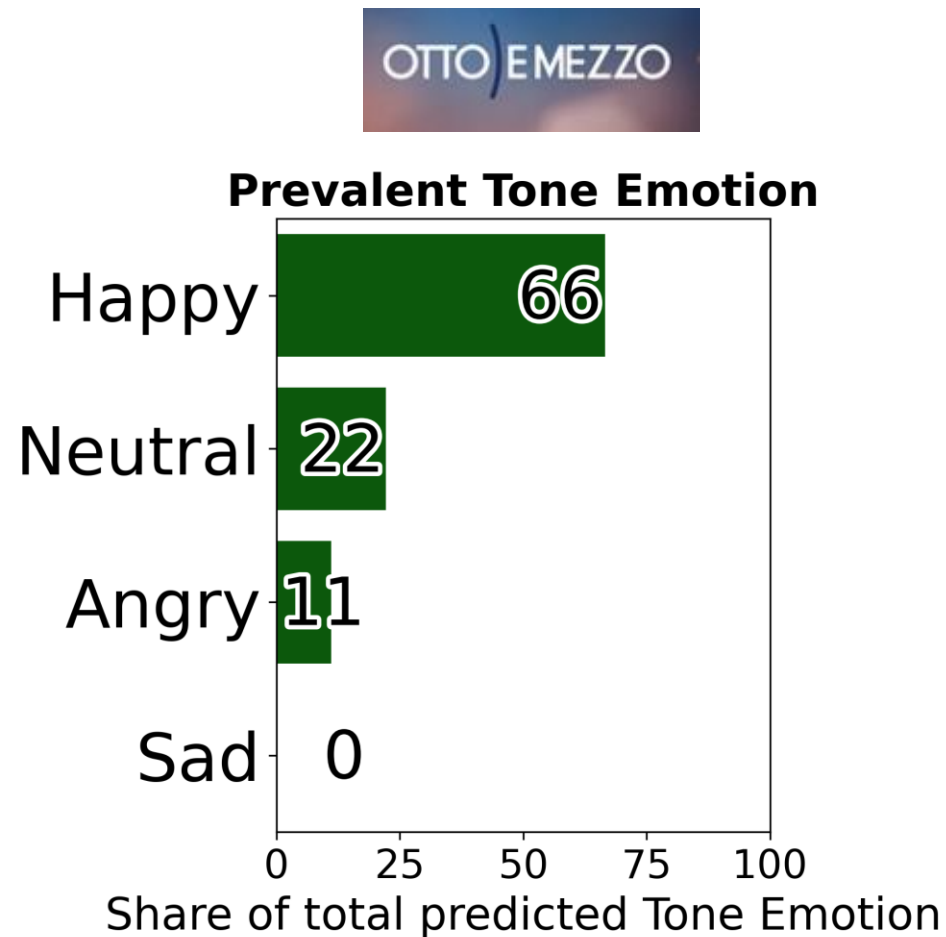
Face detection
model



Face recognition
model

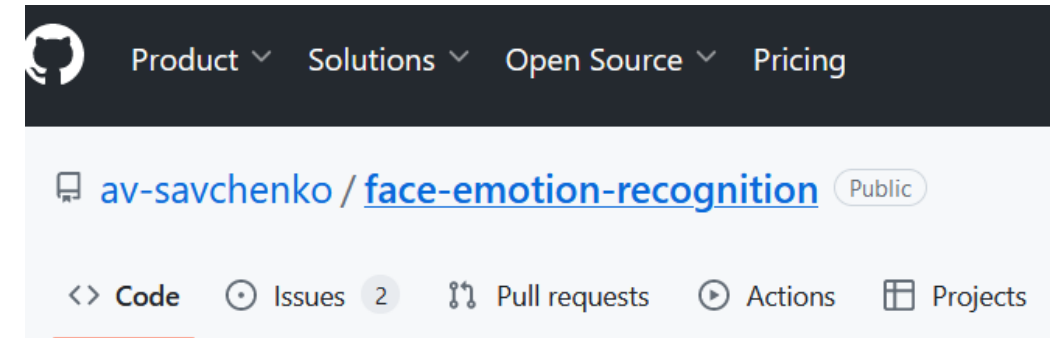


Audio Tone Distribution



Face Emotion

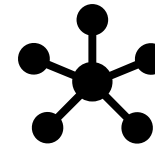
- We use HSEmotion (High-Speed face Emotion recognition) from Savchenko (2023) , accuracy ~60-65% on AffectNet (8-7 classes)



Identified face



Pass it to the model



Return emotional classes

Anger
Neutral
Sadness
Happiness
Disgust
Surprise
Contempt
Fear

Related literature

Media Bias

[newspapers] Gentzkow & Shapiro (JPE, 2006), Druckman & Parkin (JOP, 2005)

[television] Enikolopov et al. (AER, 2011) Burstzyn et al (REStud, 2023) Martin & Yurukoglu (AER, 2017)

[Italy] Barone et al. (AEJ:EconPol, 2015) Durante et al. (AER, 2019)

[IT talk show] Cerron & Splendore (2016), Novelli (2016), Anastasia et al. (2024)



Analysis of Transcriptions

Ouss et al. (NBER, 2023), Hirsch et al (EjPE 2024), Gambaro et al. (CESIFO 2023), Caprini (JPubEcon, 2023)



Audio Tone Analysis

Gorodnichenko et al. (AER, 2023) Handlan & Sheng (mimeo 2023), Seré (2023)



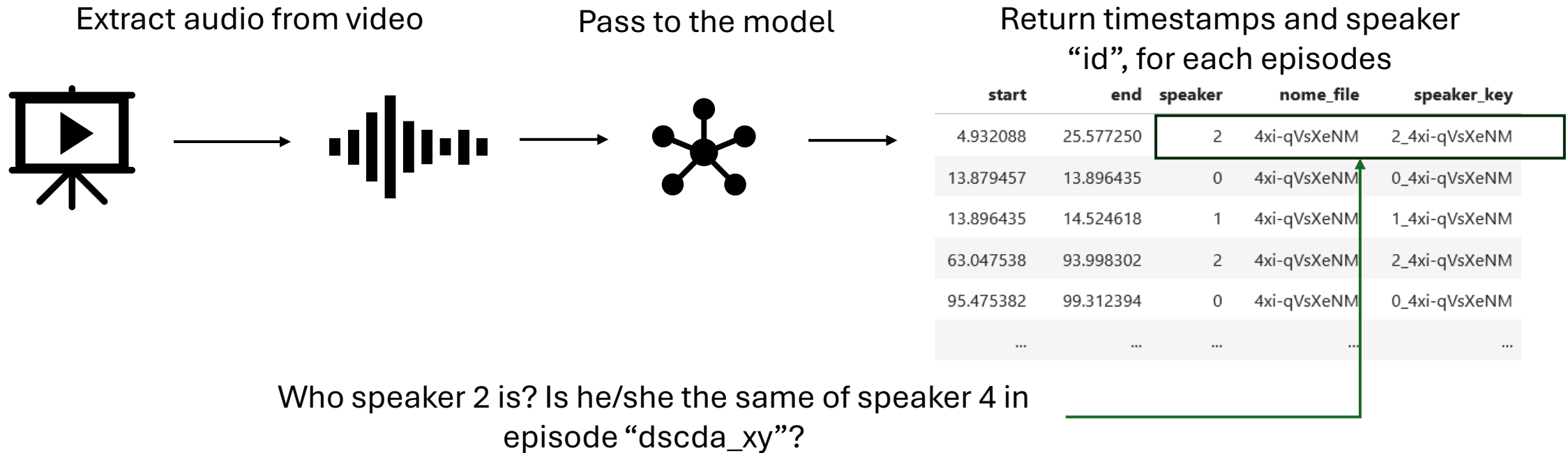
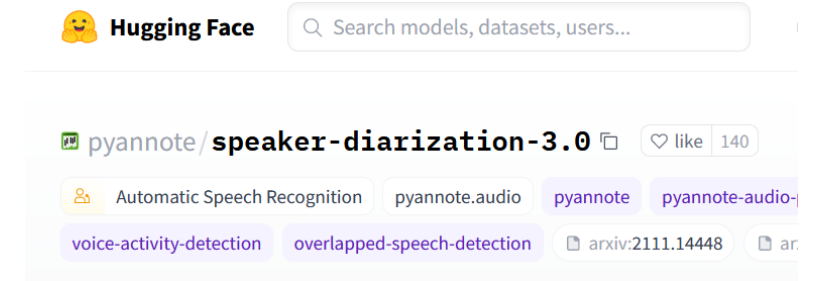
Image and video analysis

[politicians] Tarr et al. (Political Analysis, 2023), Girbau et al. (Political Analysis, 2024) Caprini (mimeo, 2024)

[gender and minorities] Donggwan Kim et al. (mimeo, 2023), Goli & Mummalaneni (mimeo, 2023), Garimella et al. (KDD, 2024)

Speaker Diarization

- We use Pyannote 3.0 (Plaquet & Bredin 2023)



Speaker “Identification”

- Who is speaker 1? and speaker 2?

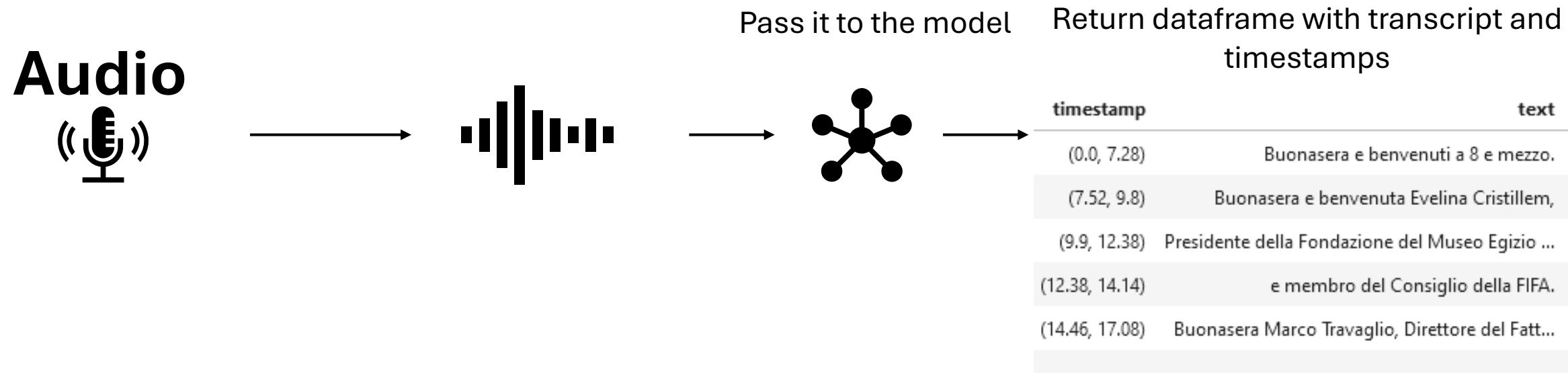
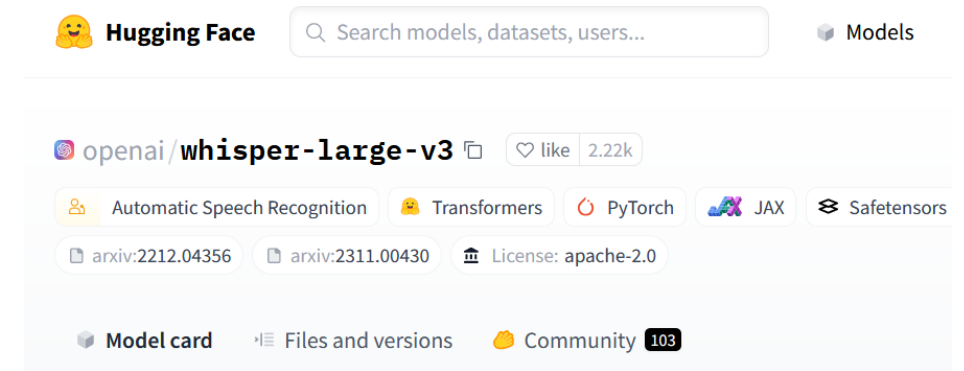


We use OCR (*Optical Character Recognition*) to get their names

A	B
speaker_key	speaker_name
1_FQQ08NfaQ_0	achille occhetto
5_Wr1u1_gYDyl	adolfo urso
7_Lx9tZABx9_c	adriano celentano
0_QqZqaXSZklg	agnese pini
3_dz1LLHZKG1E	agostino miozzo
0_DFW9zHx04os	alberta pelino
1_ne0K2elAqKY	alberto bagnai
1_q11YVhyAwNw	alberto balocco

Transcripts

- We use emotion recognition Whisper-large-V3 from OpenAI (Radford et al. 2022)



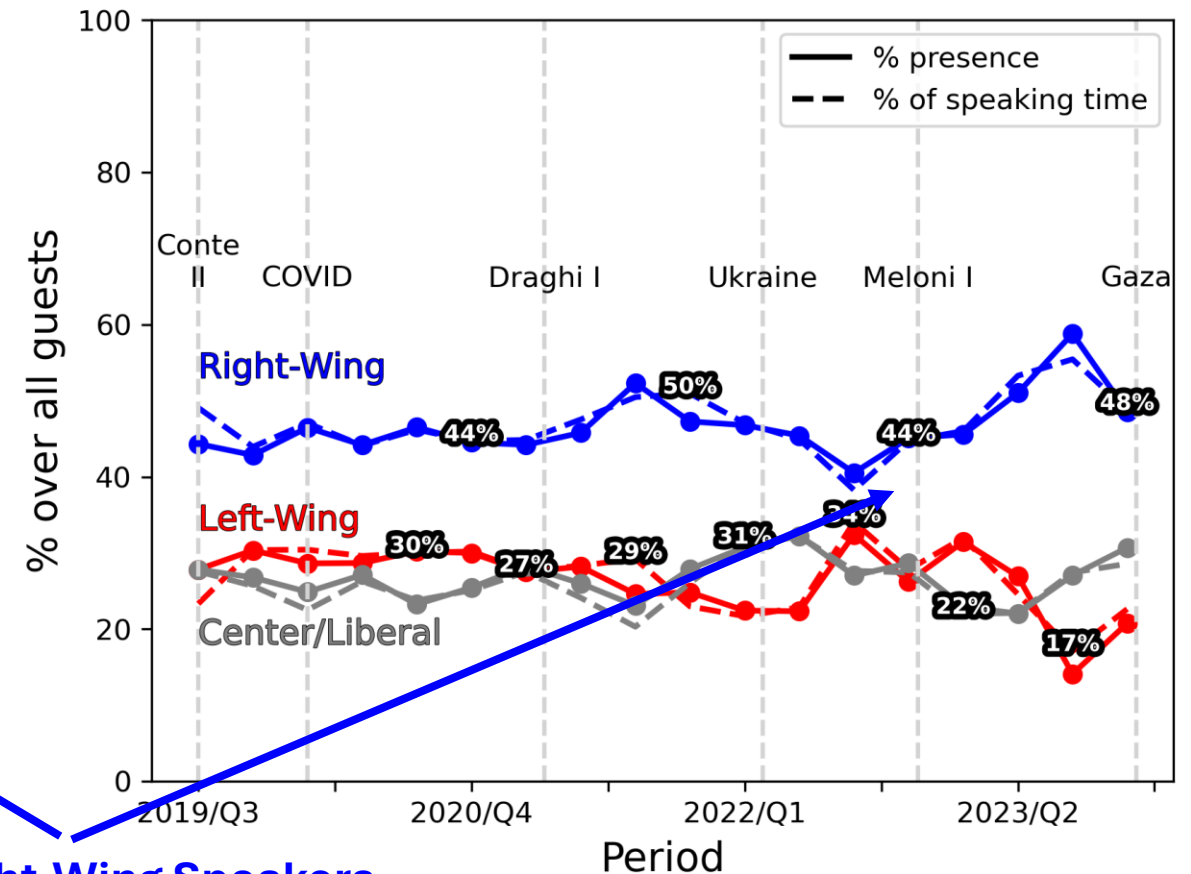
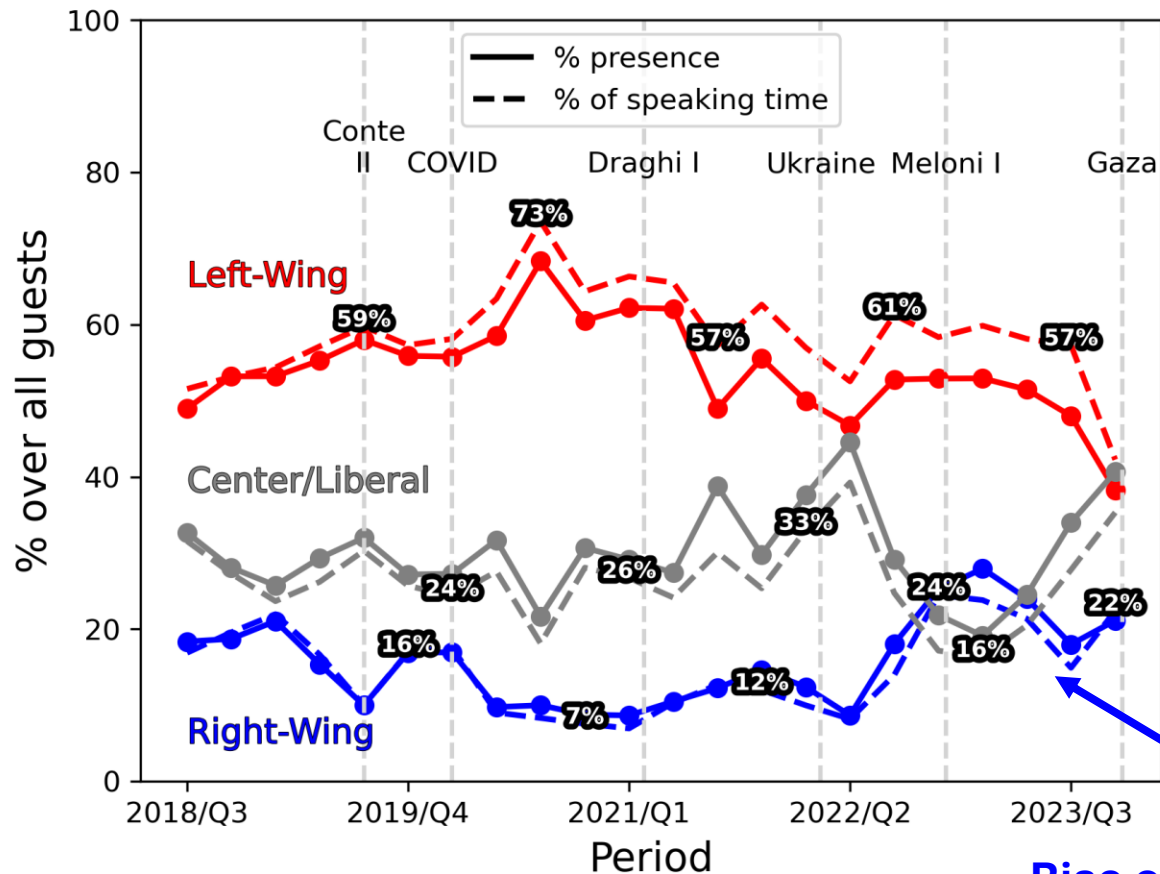
start	end	date	title	nome_file	speaker_key	speaker_name
4.932088	25.577250	2023-10-03	Otto e Mezzo 03/10/2023	4xi-qVsXeNM	2_4xi-qVsXeNM	lilli gruber
13.879457	13.896435	2023-10-03	Otto e Mezzo 03/10/2023	4xi-qVsXeNM	0_4xi-qVsXeNM	marco travaglio
13.896435	14.524618	2023-10-03	Otto e Mezzo 03/10/2023	4xi-qVsXeNM	1_4xi-qVsXeNM	brunella bolloli
63.047538	93.998302	2023-10-03	Otto e Mezzo 03/10/2023	4xi-qVsXeNM	2_4xi-qVsXeNM	lilli gruber
95.475382	99.312394	2023-10-03	Otto e Mezzo 03/10/2023	4xi-qVsXeNM	0_4xi-qVsXeNM	marco travaglio
...	...	...	...	...	...	...

Summing up

- Videos are an extremely rich (and meaningful) source of data
- We have some (correlational) results on the preference of the audience towards more «active» tones, journalists and experts (vs politicians) and male speakers.
- We have some results on:
 - partisanship of programmes, with trends over time.
 - heterogeneity of tone and type of speakers w/ respect to the topics discussed.
 - facial expression convey «comments» on the speakers.

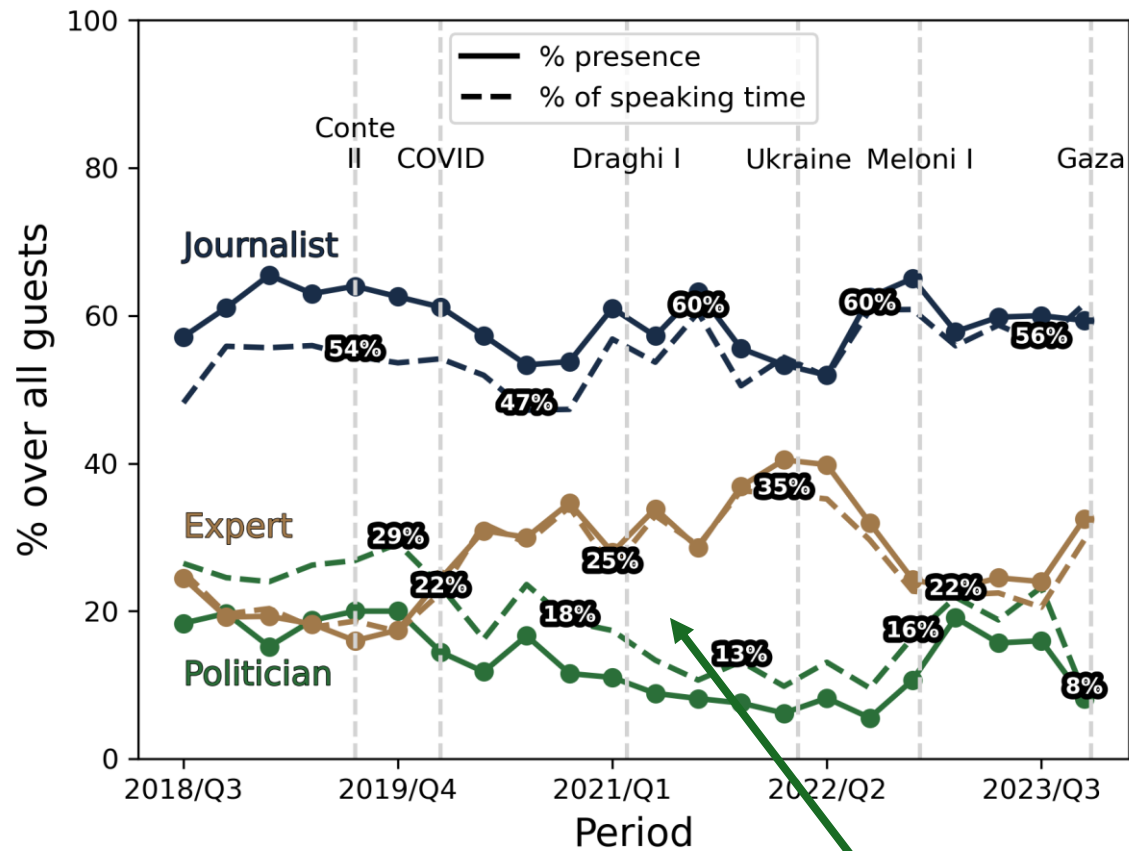
APPENDIX

Partishanship – Otto e Mezzo VS Stasera Italia

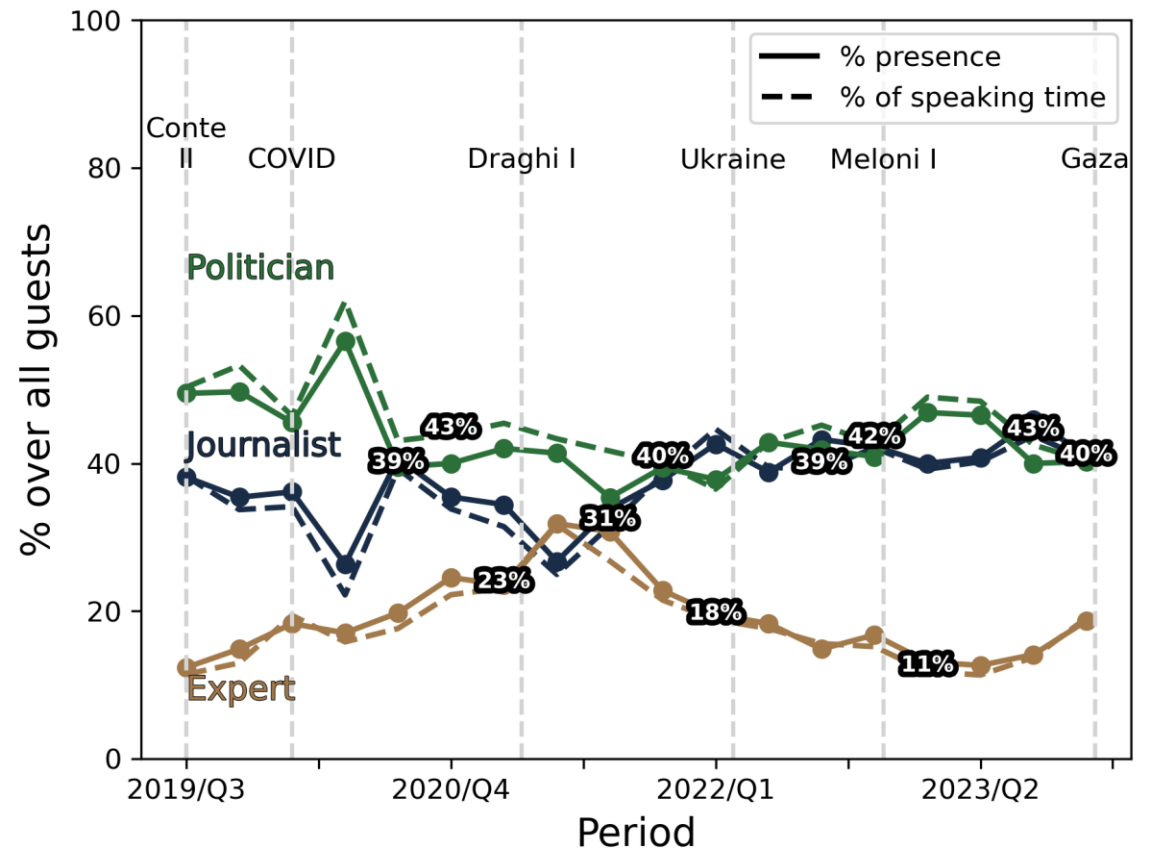


Rise of Right-Wing Speakers

Speaker Type – Otto e Mezzo VS Stasera Italia



Rise of experts at the expense of politician

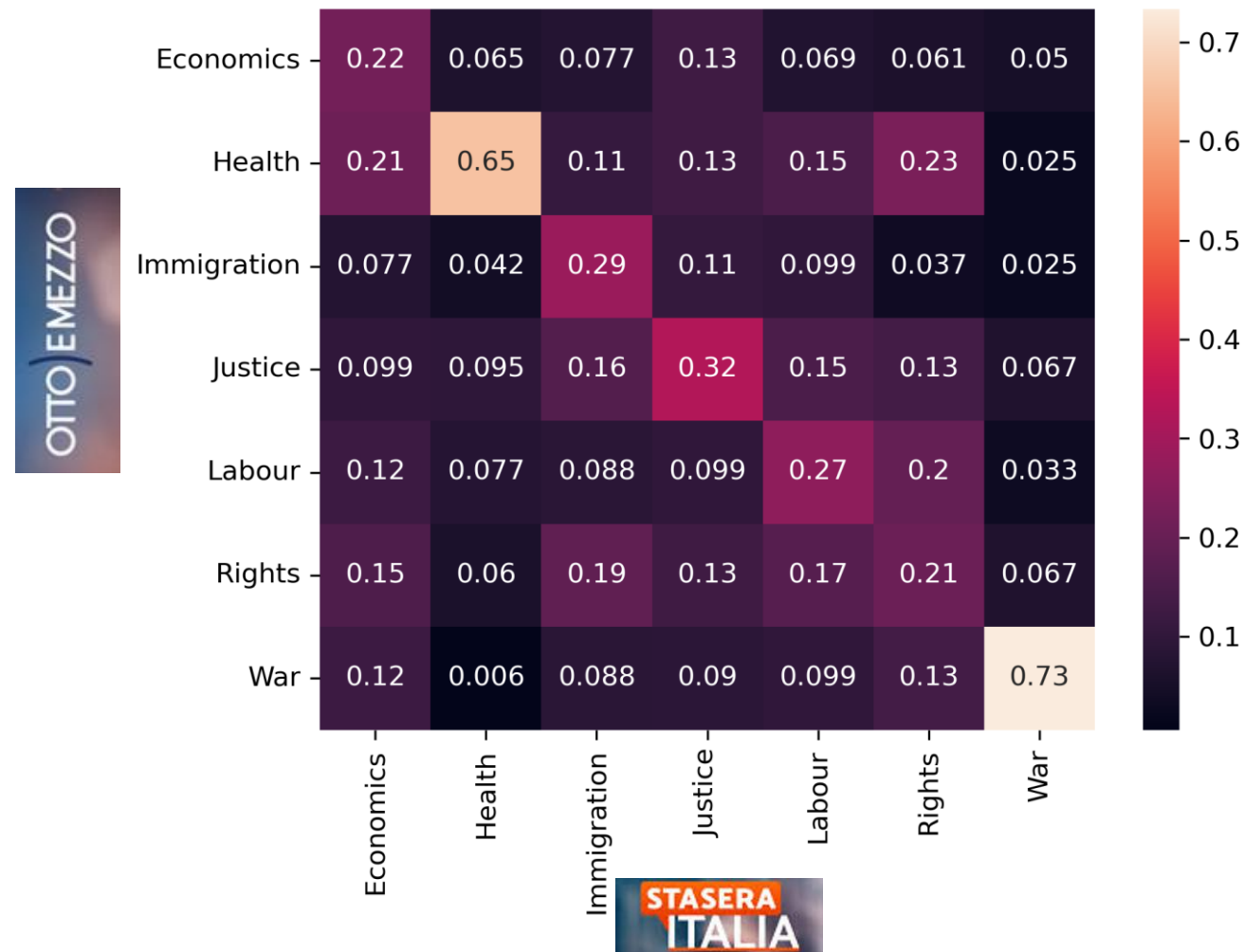


Example of speakers

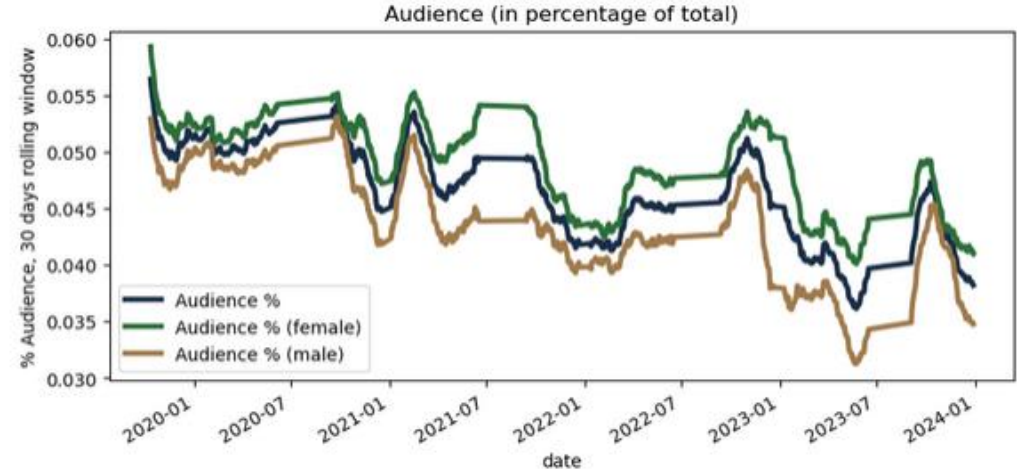
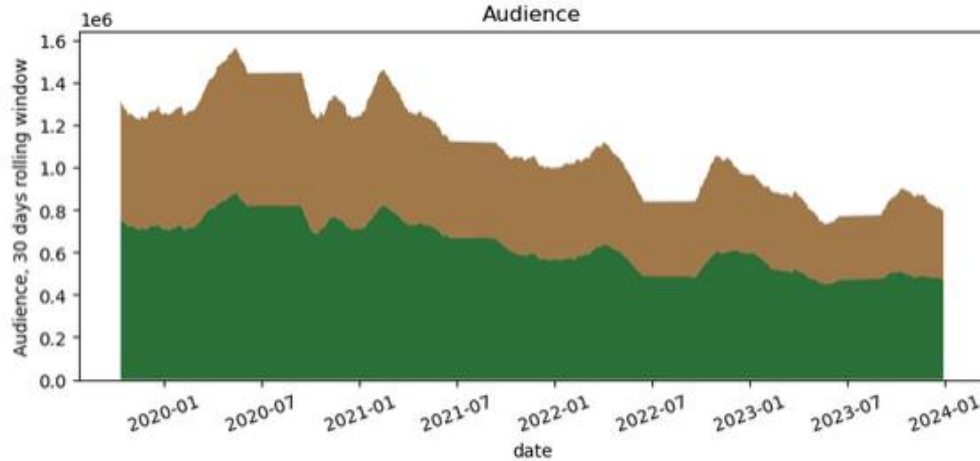
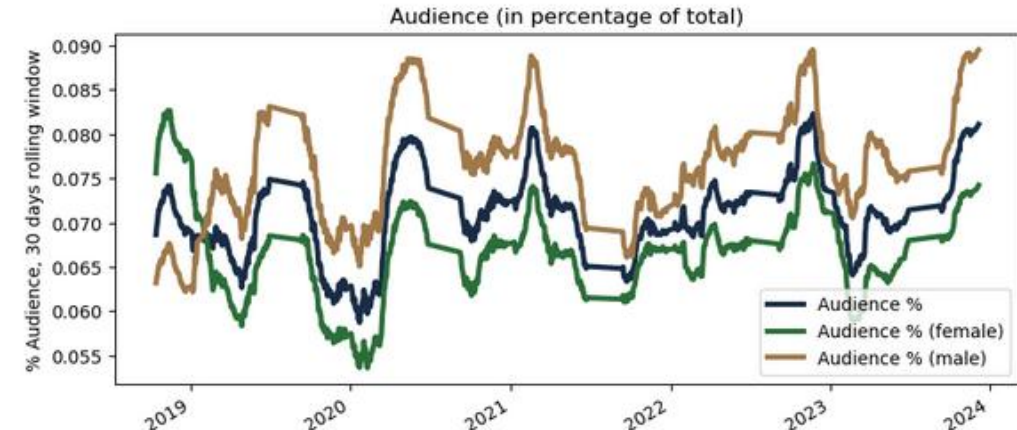
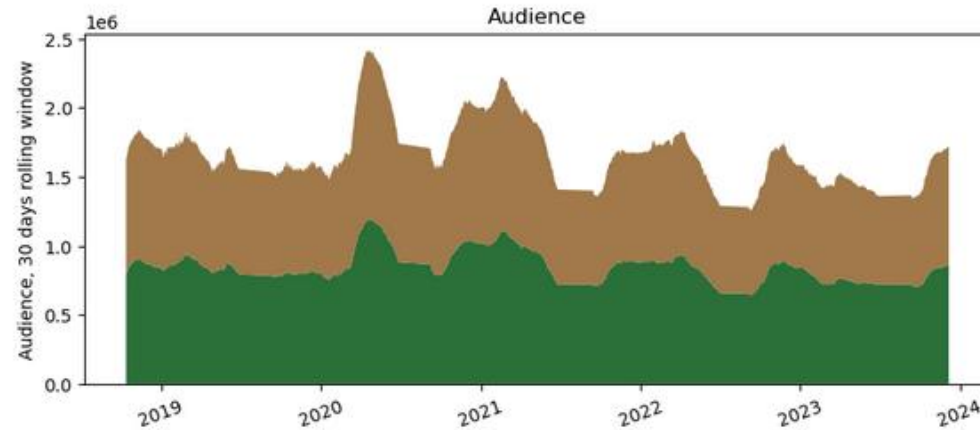
1057 speakers in total! (605 in *Otto e Mezzo*, 588 in *Stasera Italia*, **136** in both)

A	B	C	D	E	F	G	H	I	J
speaker_name	left-right	type	party	testata	profile	durata	nome	sex	nationality
achille occhetto	left	politician	indipendent			0.168784	achille	male	italian
adolfo urso	right	politician	fratelli d'italia			0.161248	adolfo	male	italian
adriano celentano	?	expert			singer	0.0931	adriano	male	italian
agnese pini	center	journalist		la nazione		0.335319	agnese	female	italian
agostino miozzo	?	expert			physician	0.054886	agostino	male	italian
alberta pelino	?	expert			sport communic	0.035927	alberta	female	italian
alberto bagnai	right	politician	lega			0.5255	alberto	male	italian
alberto balocco	?	expert			entrepreneur	0.045194	alberto	male	italian
alberto brambilla	?	expert			economist	0.120605	alberto	male	italian
alberto forchielli	center	expert			entrepreneur	0.189134	alberto	male	italian
alberto mantovani	?	expert			immunologist	0.249387	alberto	male	italian
alberto negri	left	journalist				0.052169	alberto	male	italian
aldo cazzullo	center	journalist		corriere della sera		1.226467	aldo	male	italian
alessandra galloni	?	journalist		reuters		0.056381	alessandra	female	italian
alessandra ghisleri	center	expert			pollster	0.585932	alessandra	female	italian
alessandra locatelli	right	politician	lega			0.174109	alessandra	female	italian
alessandra moretti	left	politician	partito democratico			0.622548	alessandra	female	italian
alessandra pasini	?	journalist				0.065983	alessandra	female	italian
alessandra tarquini	?	expert			historian	0.819633	alessandra	female	italian
alessandro azzoni	center	expert			diplomat	0.076745	alessandro	male	italian
alessandro barbano	right	journalist		corriere dello sport		0.324783	alessandro	male	italian

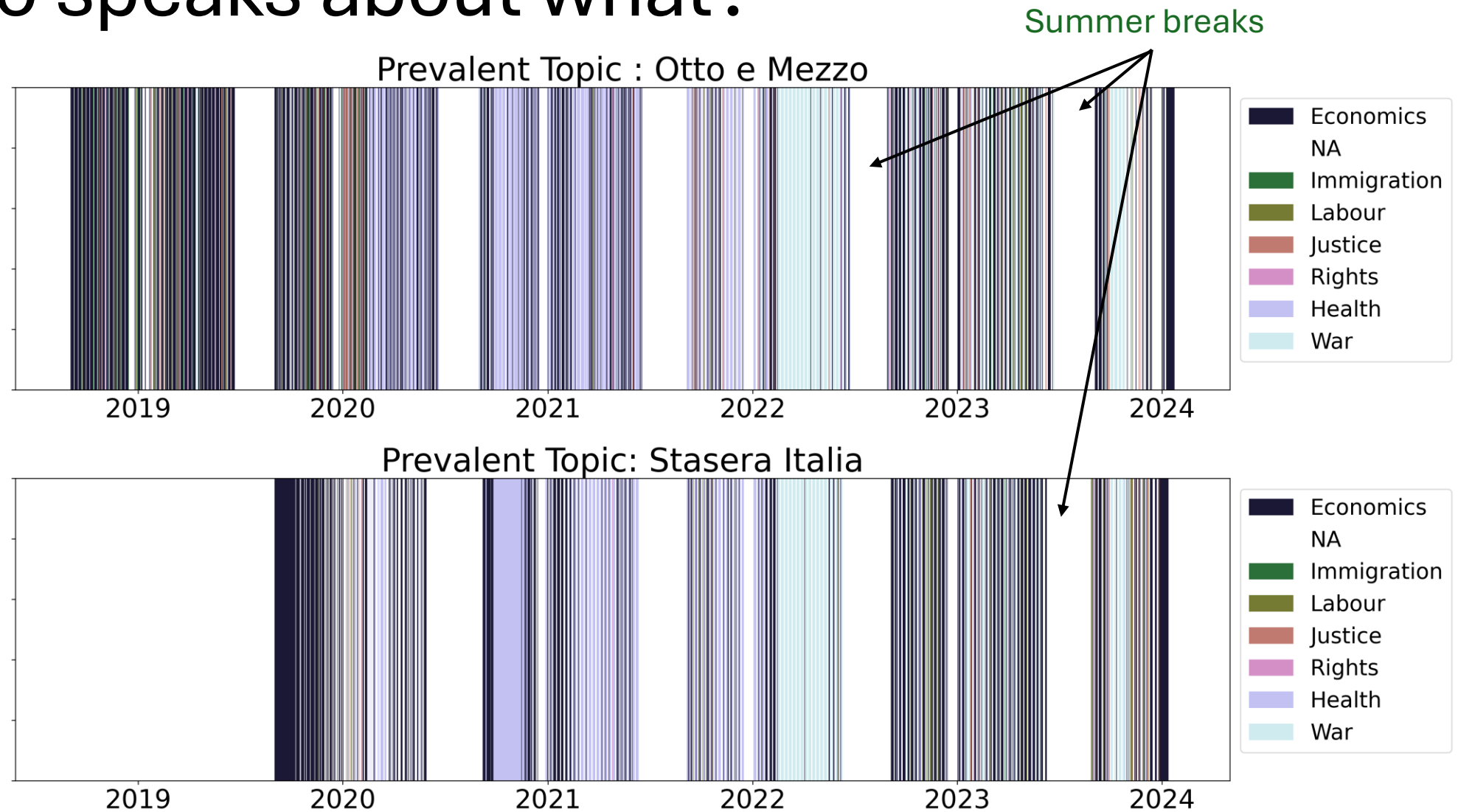
Topics Competition



Audience Summary statistics – Otto e Mezzo

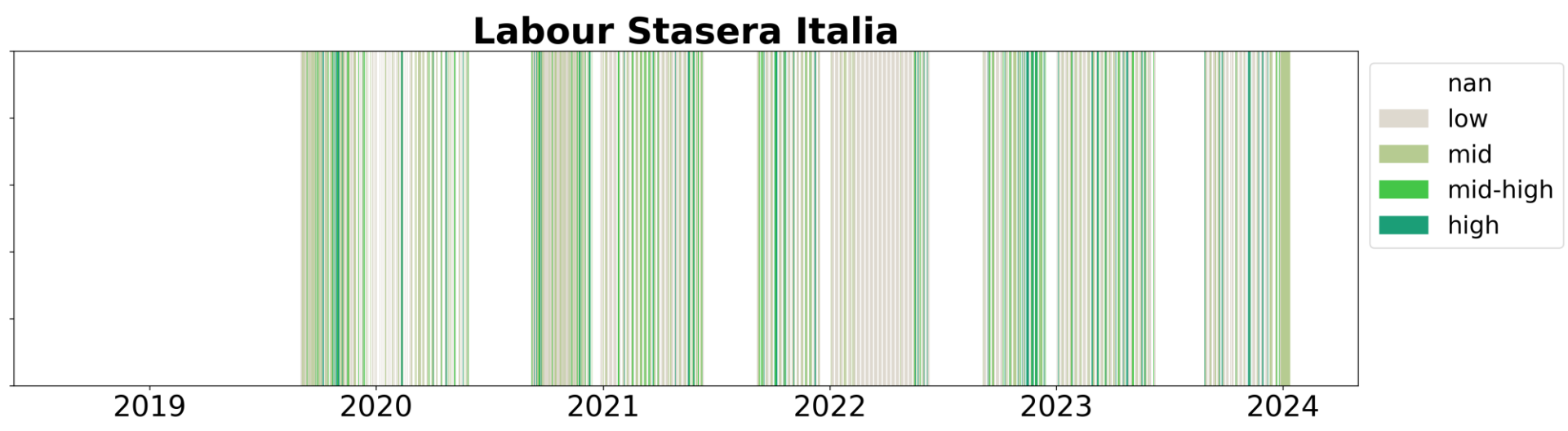
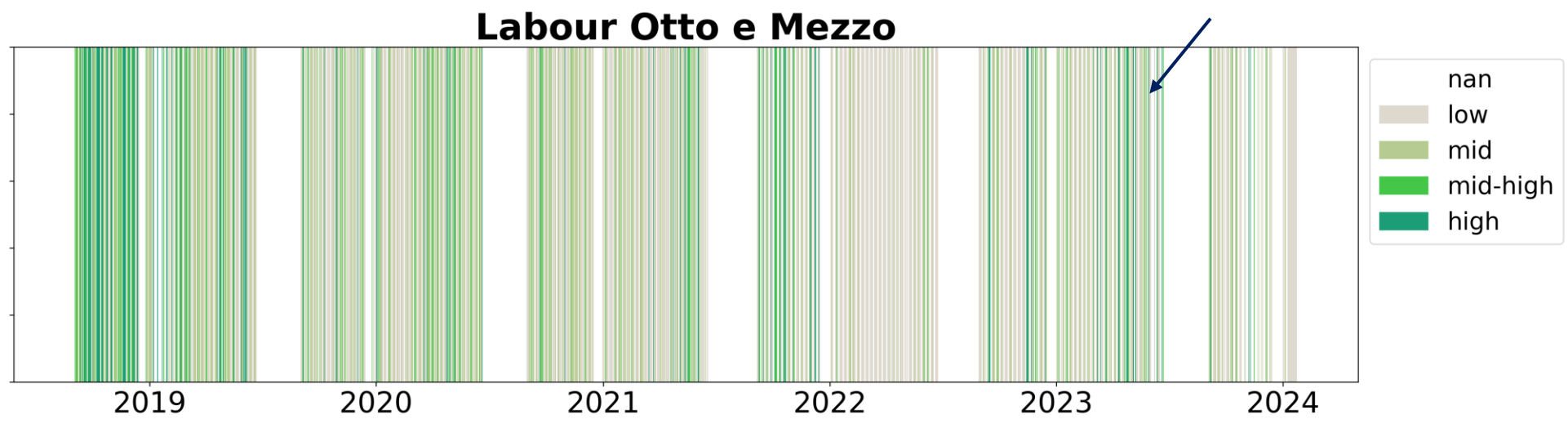


Who speaks about what?

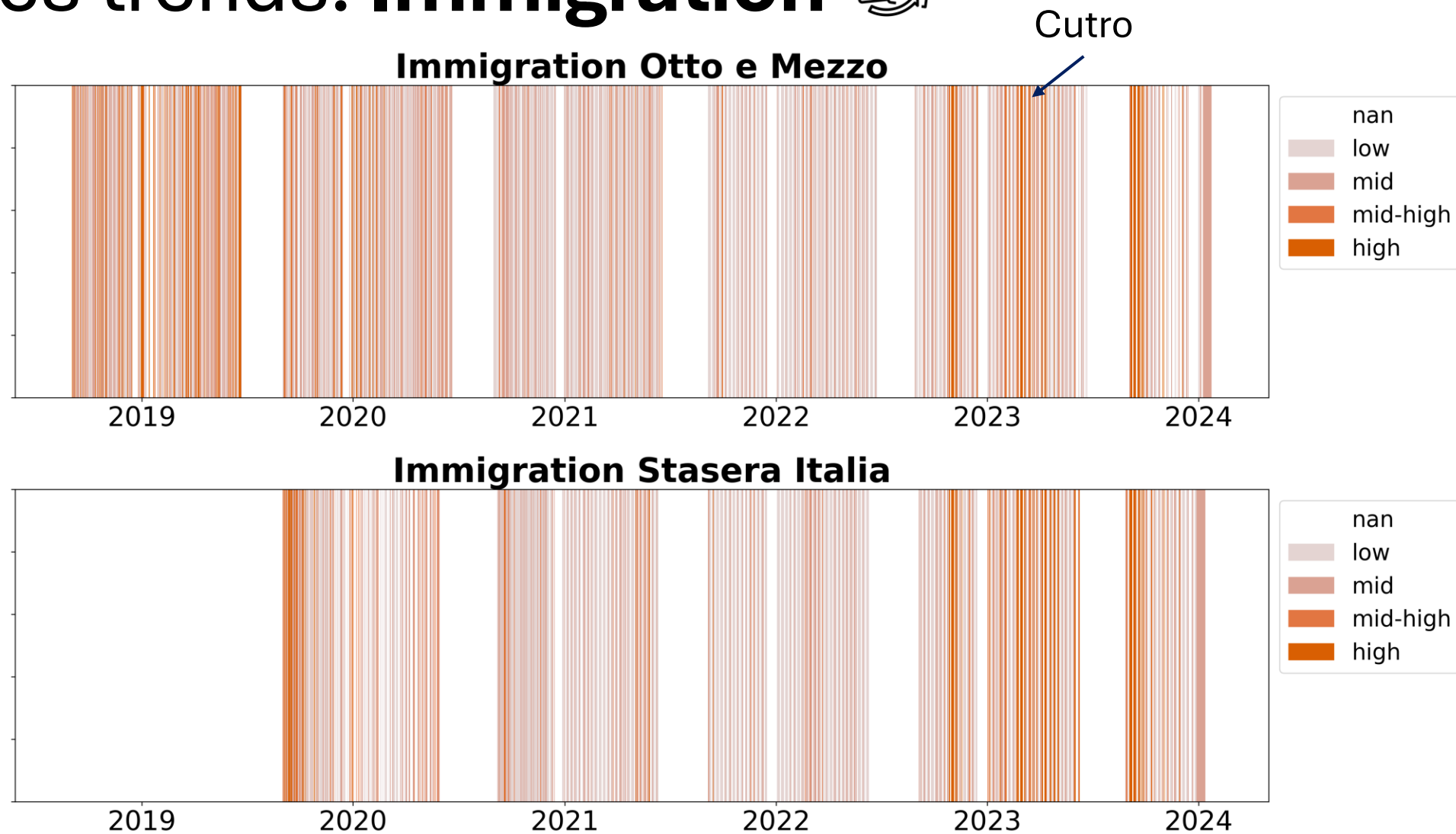


Topics trends: Labour

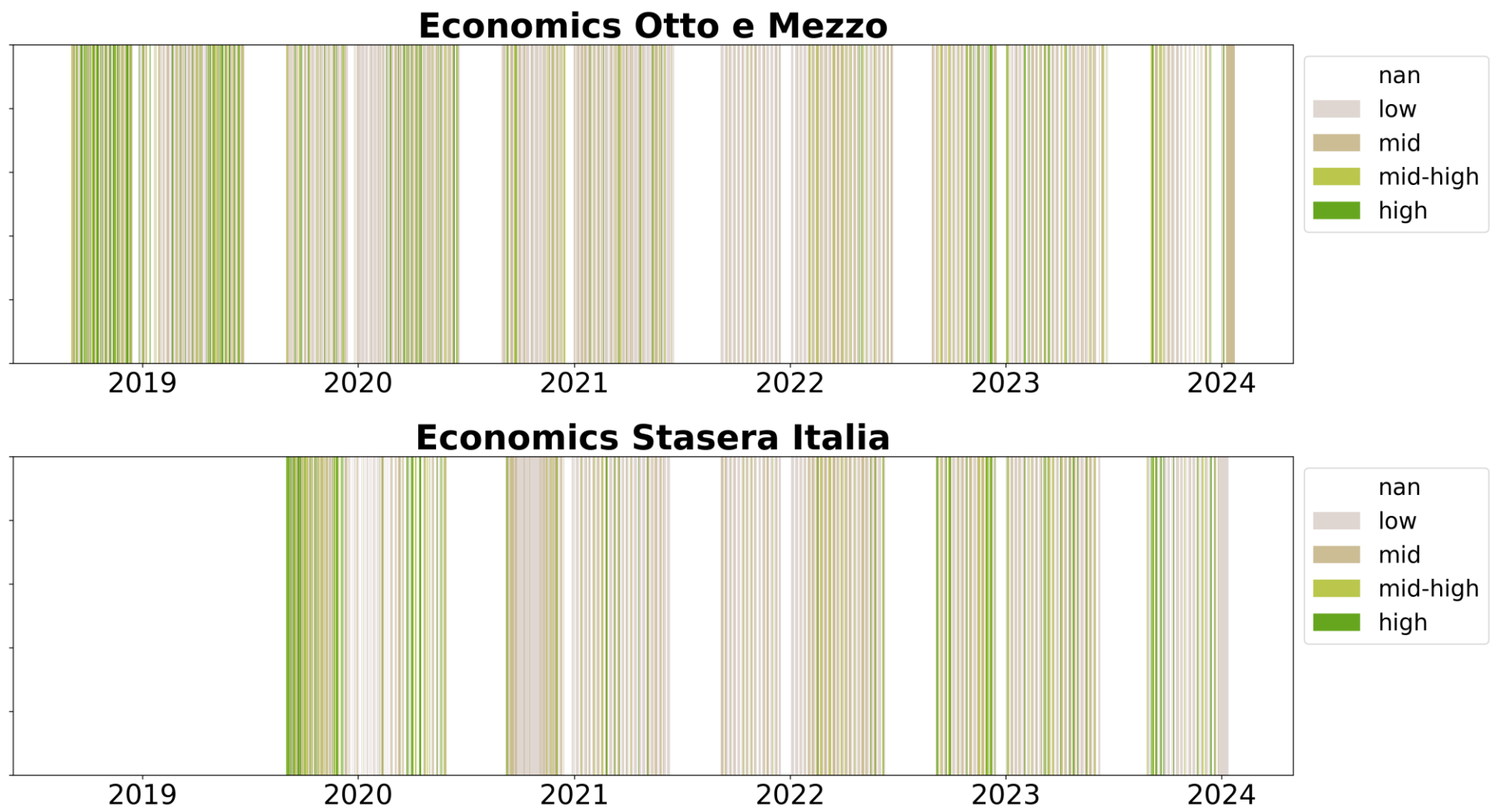
Minimum Wage Proposal



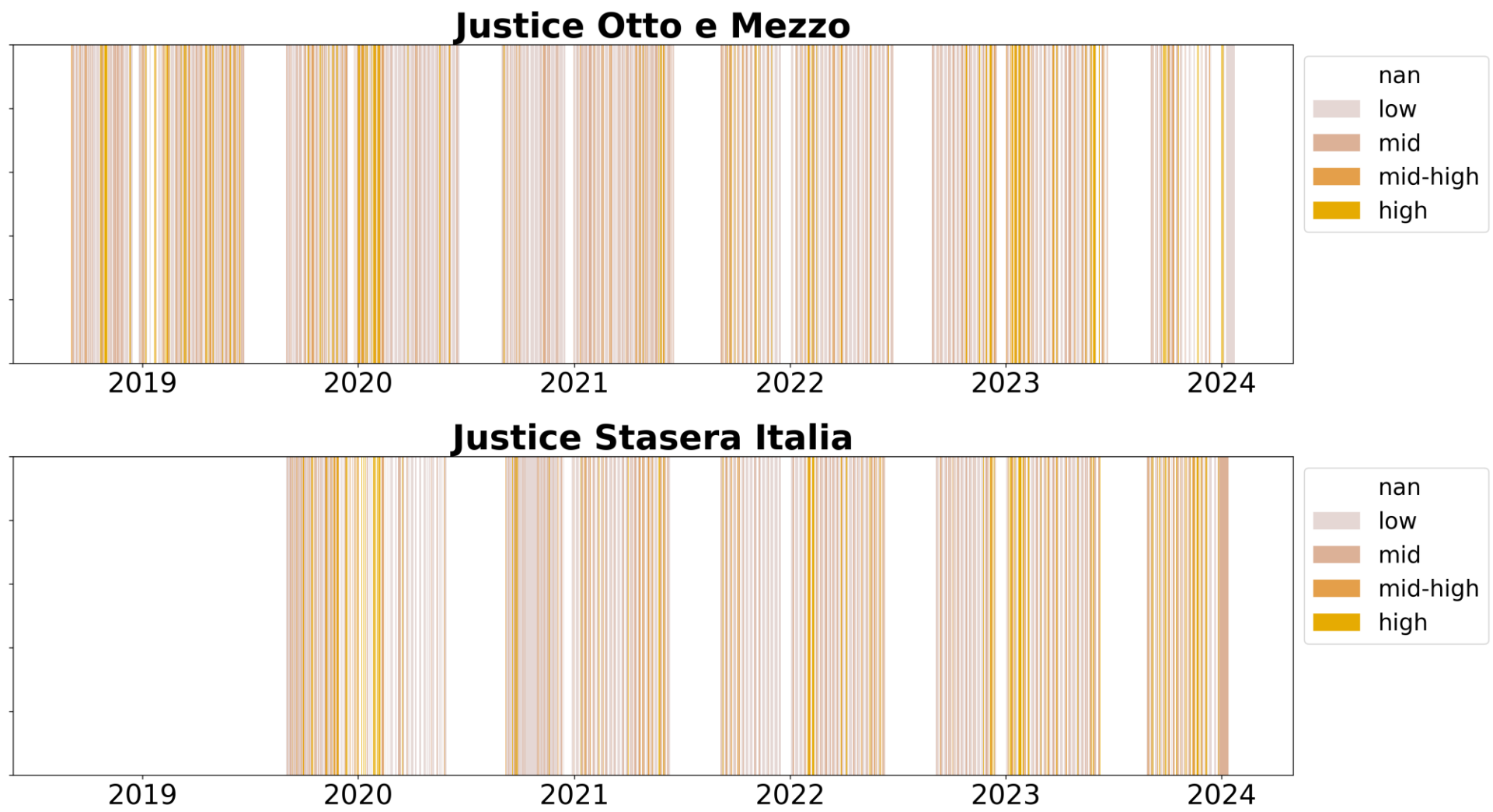
Topics trends: Immigration



Topics Trends: Economics 🏠



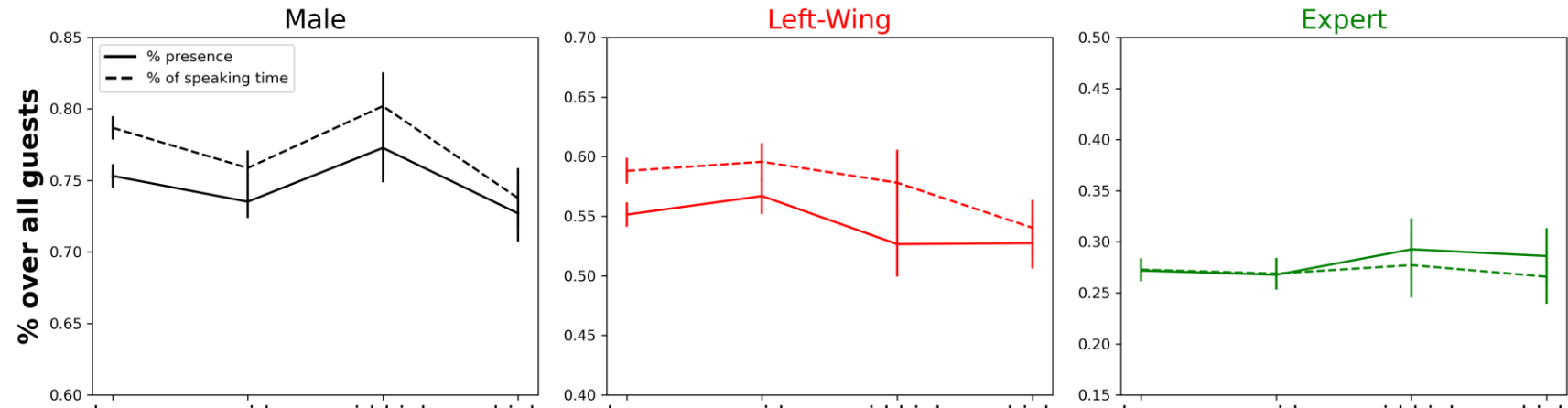
Topics Trends: Justice



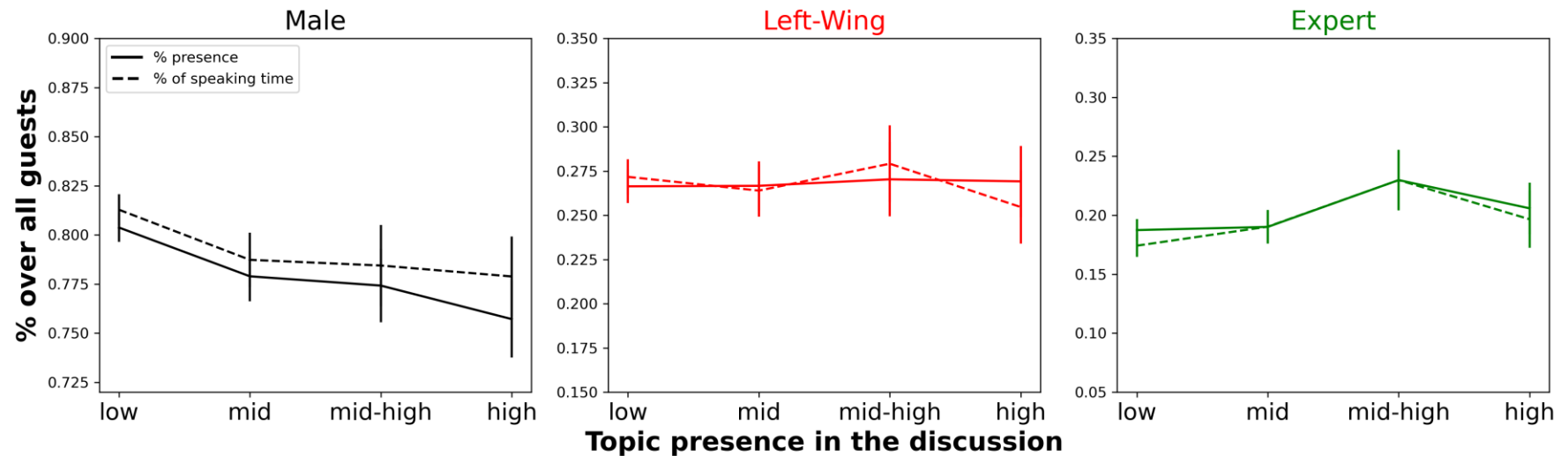
Who speaks about what?



Rights (Otto e Mezzo)



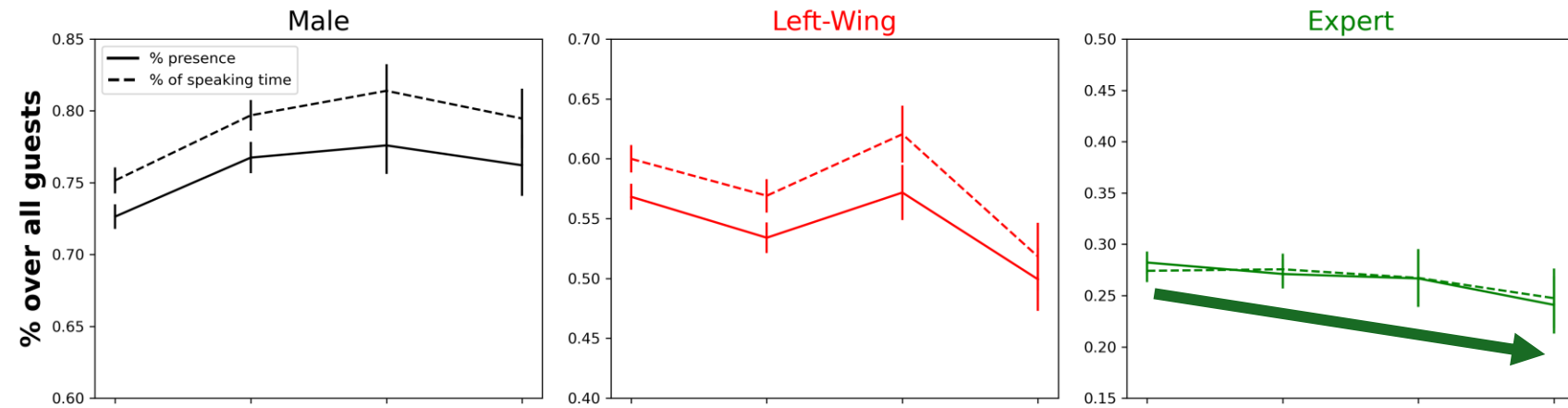
Rights (Stasera)



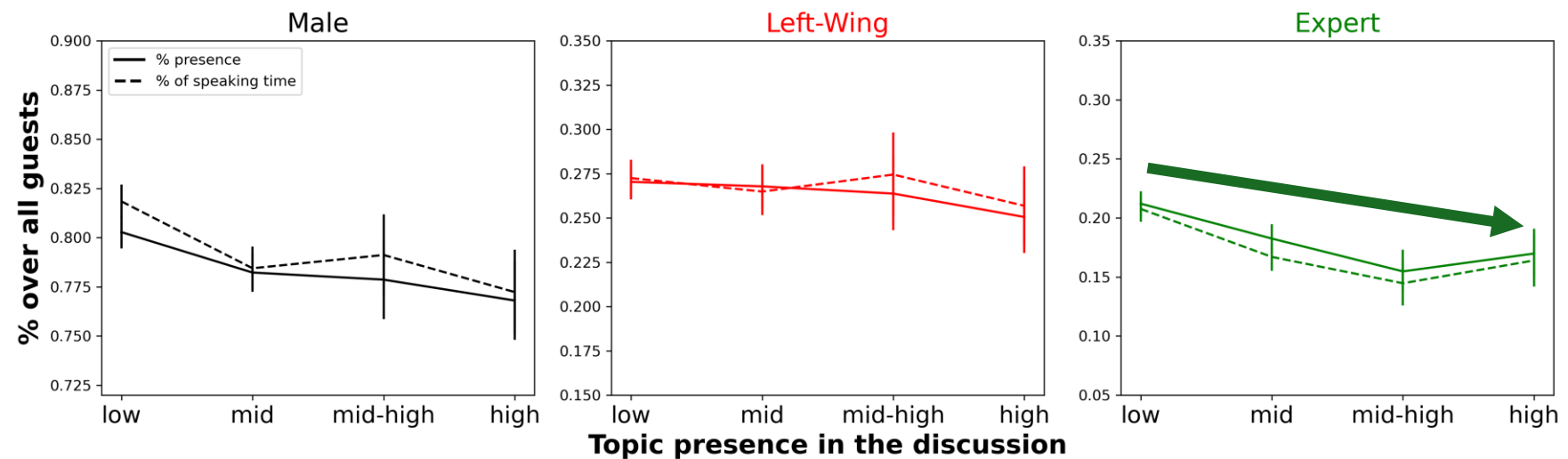
Who speaks about what?



Economics (Otto e Mezzo)



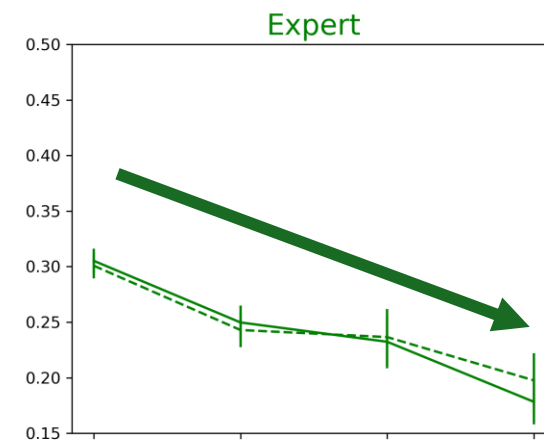
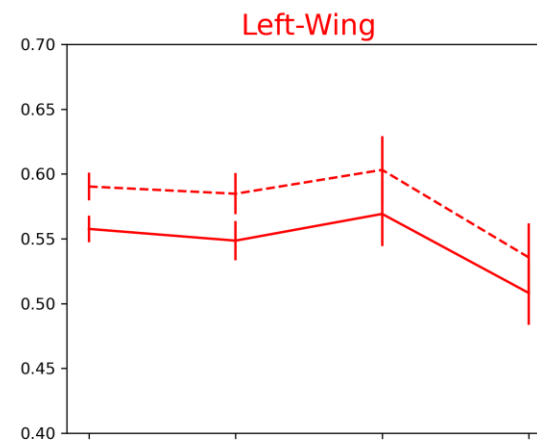
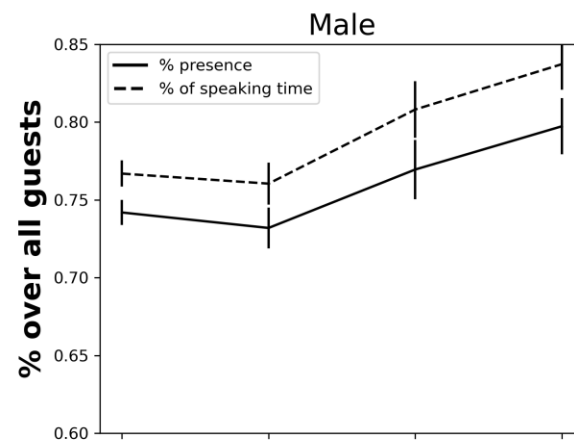
Economics (Stasera)



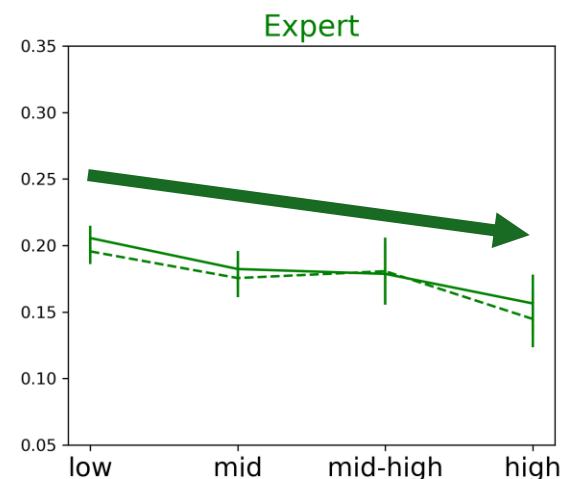
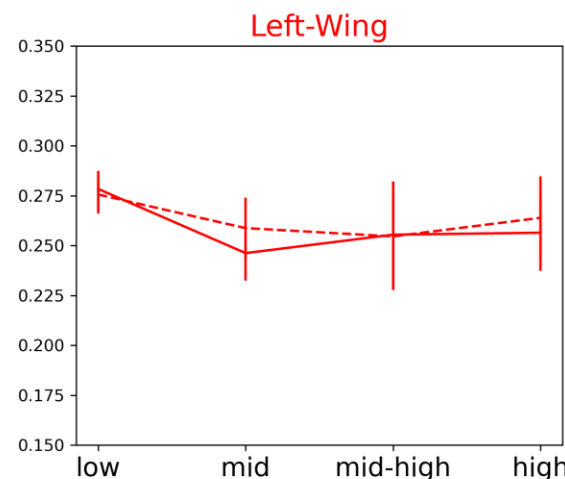
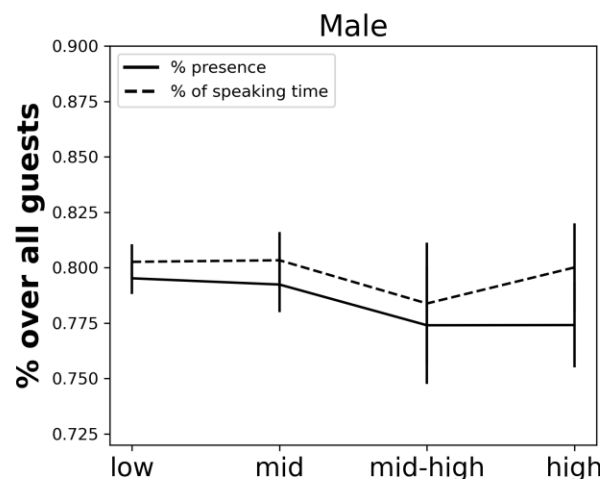
Who speaks about what?



Justice (Otto e Mezzo)



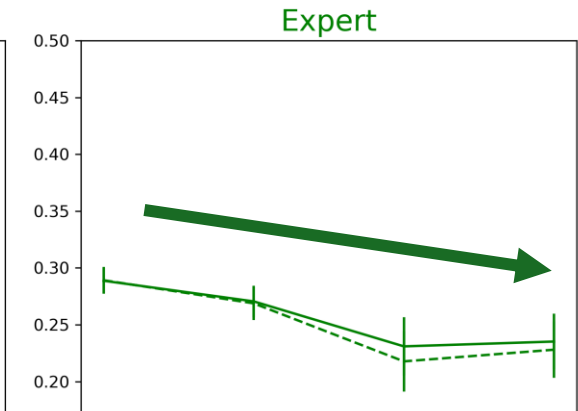
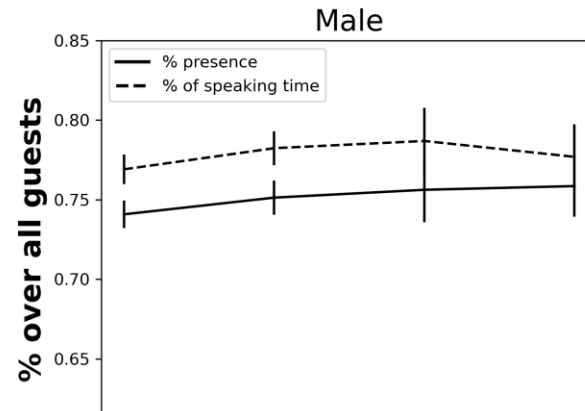
Justice (Stasera)



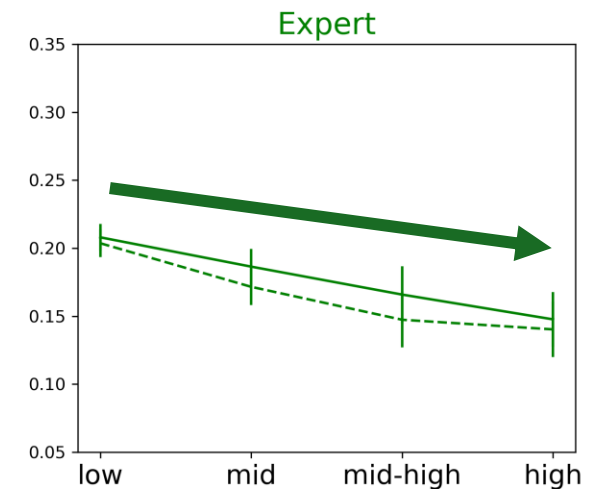
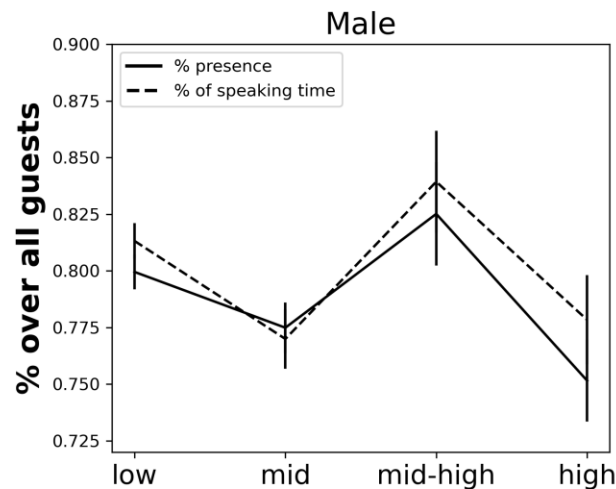
Topic presence in the discussion

Who speaks about what?

Immigration (Otto e Mezzo)



Immigration (Stasera)



Topic presence in the discussion

Tone matters

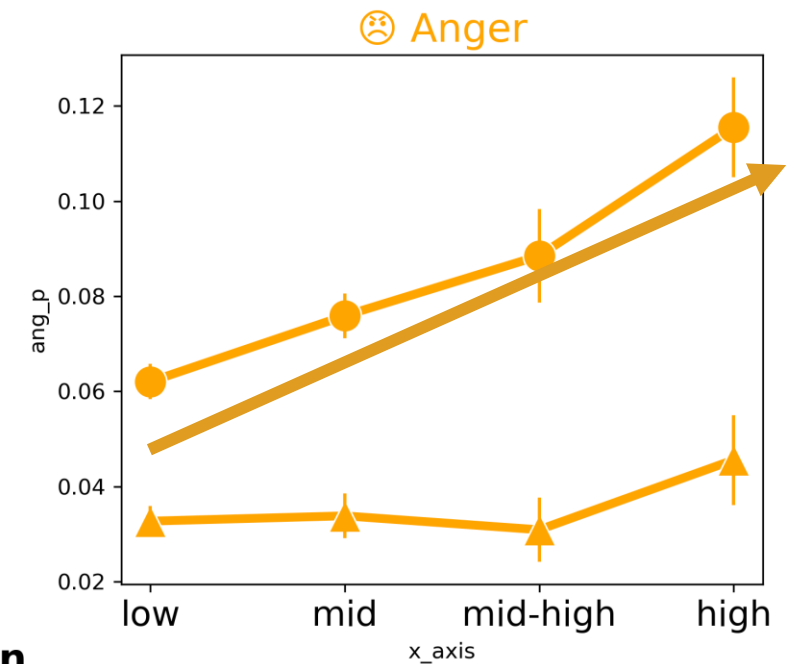
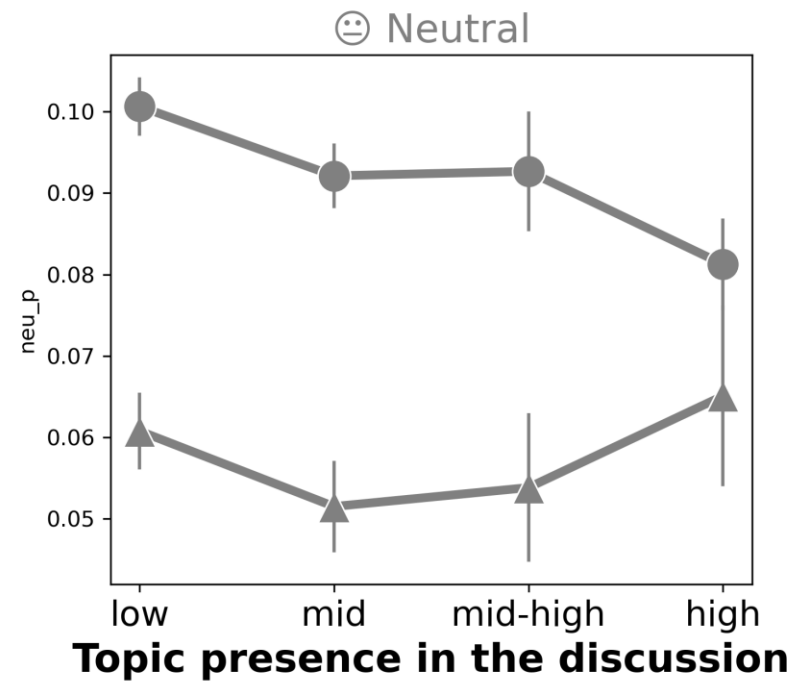
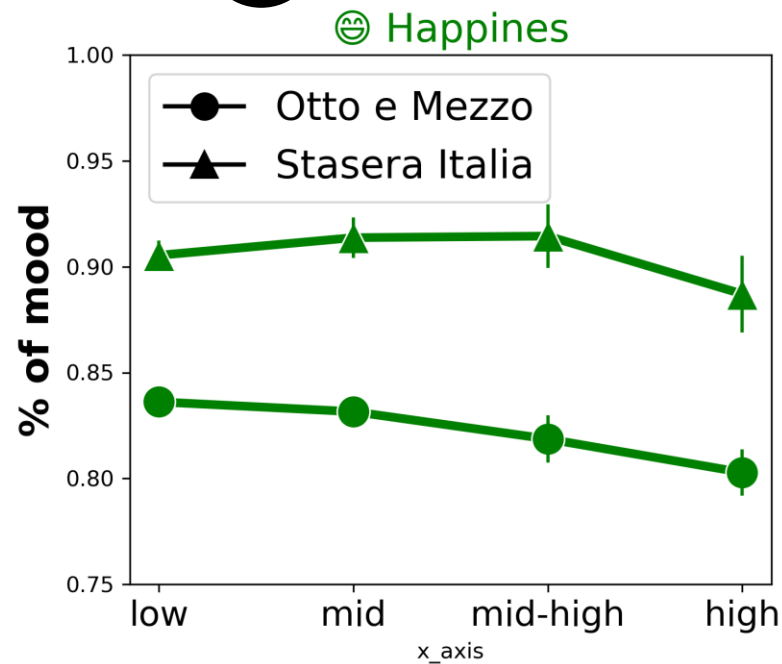


From 'shrill' housewife to Downing Street: the changing voice of Margaret Thatcher

The former Prime Minister took lessons in the 1970s to make her voice seem firmer and more powerful

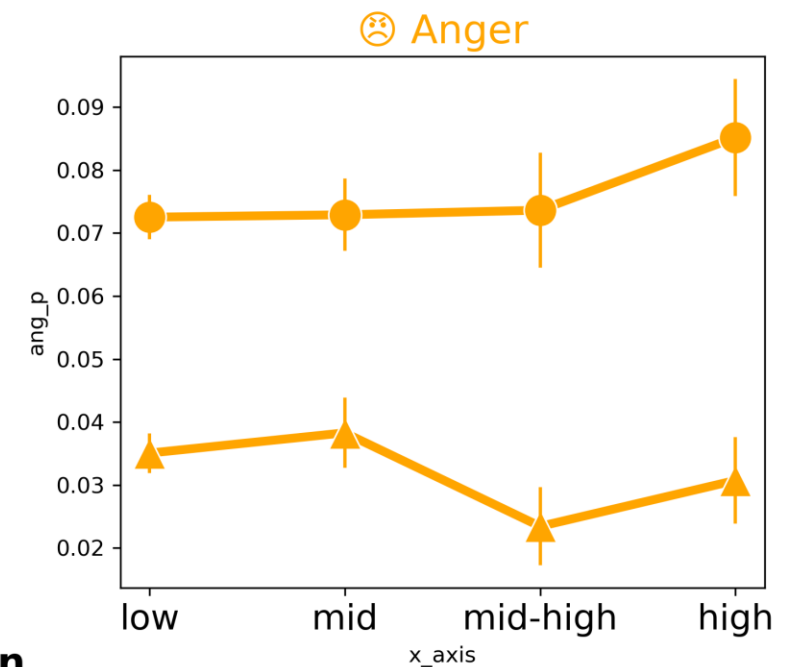
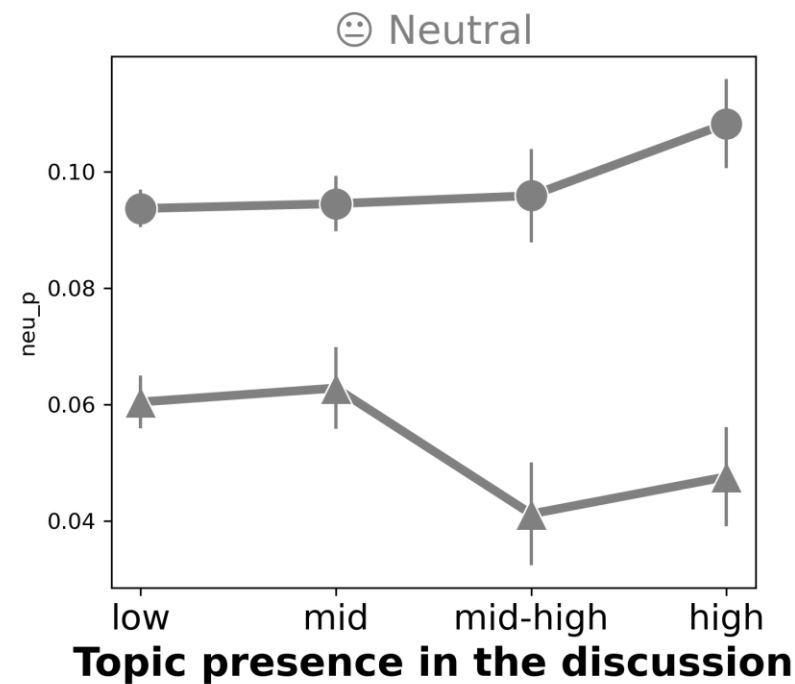
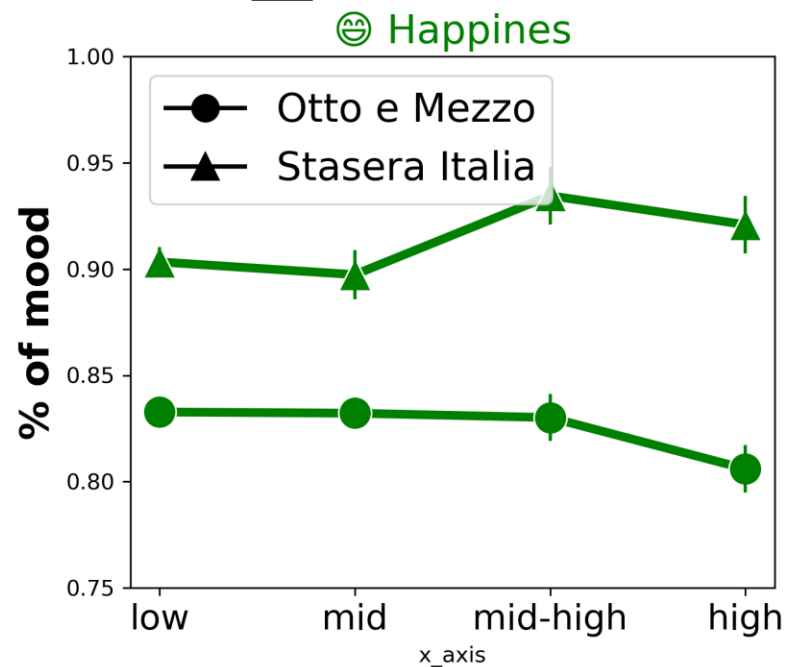
Tone and Topics

Health 



Tone and Topics

Justice 

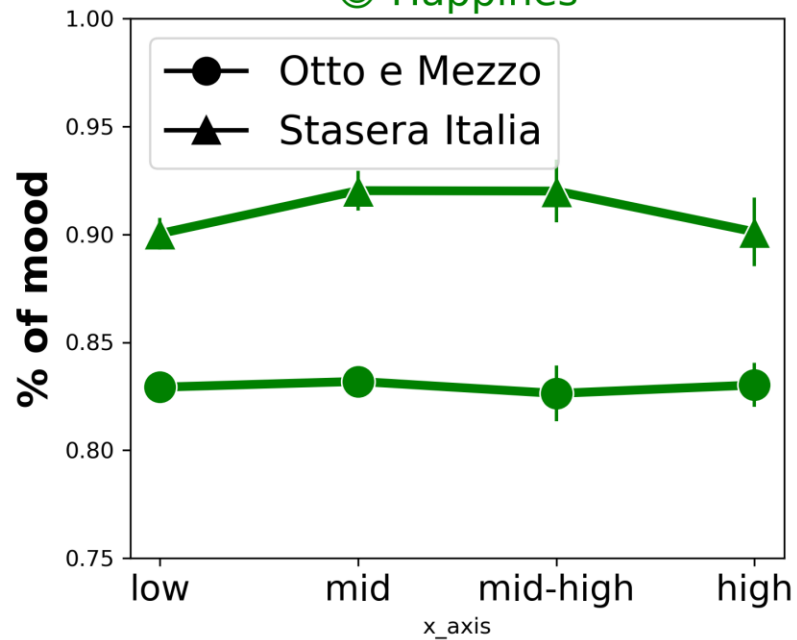


Tone and Topics

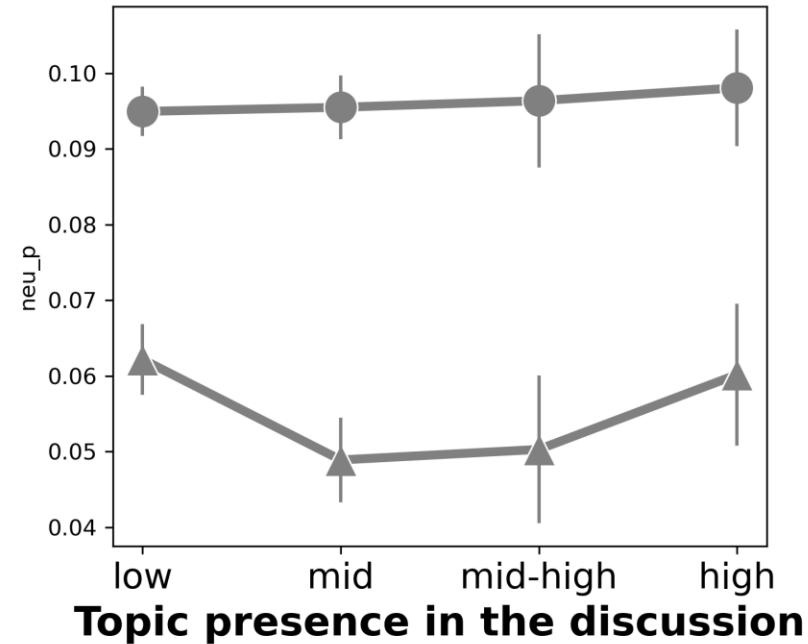
Rights



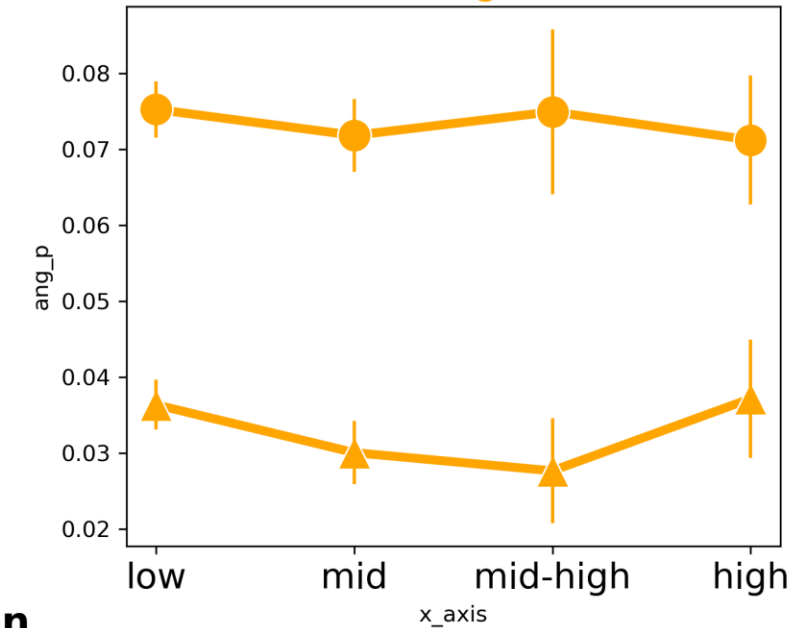
😊 Happiness



😊 Neutral



😡 Anger

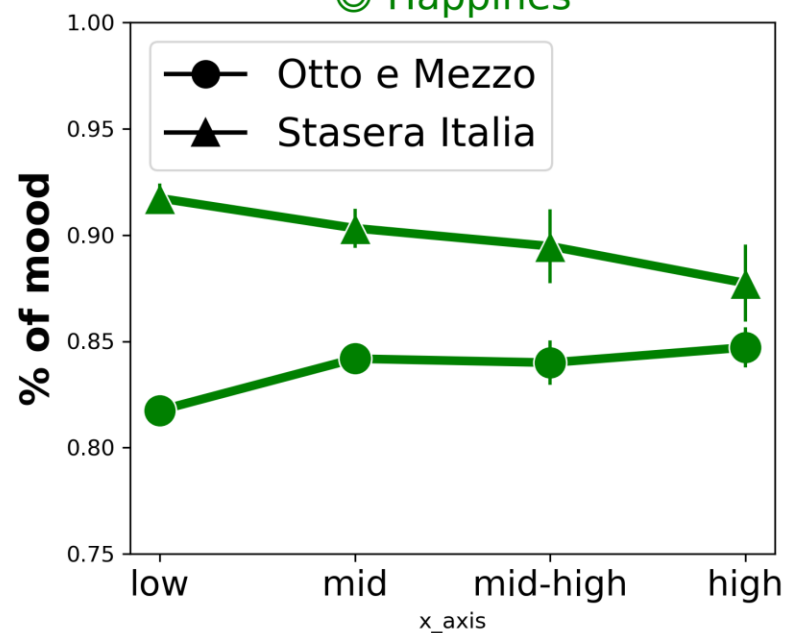


Tone and Topics

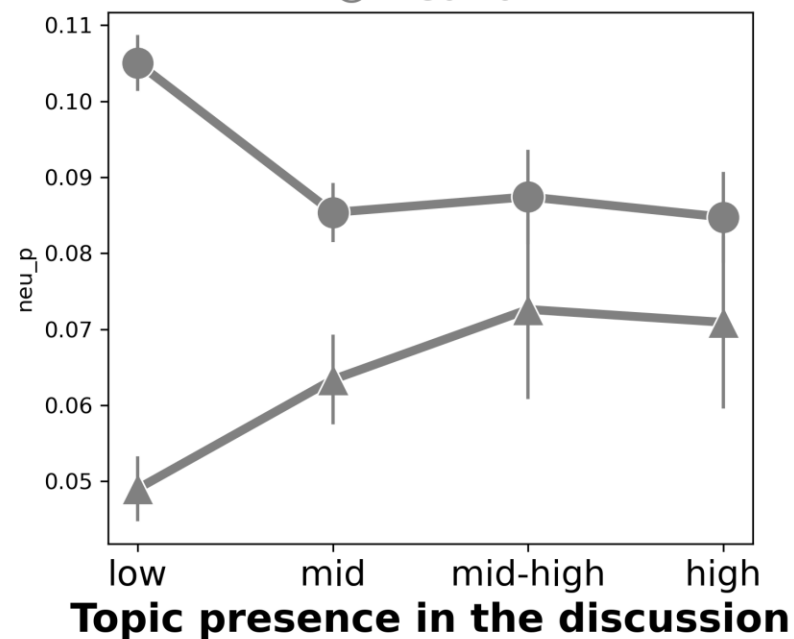
Economics



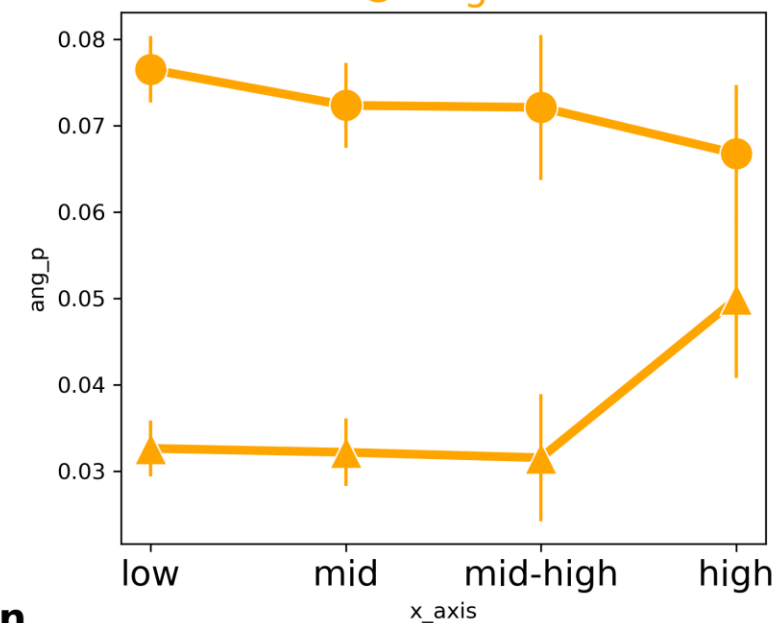
😊 Happiness



😐 Neutral



😡 Anger

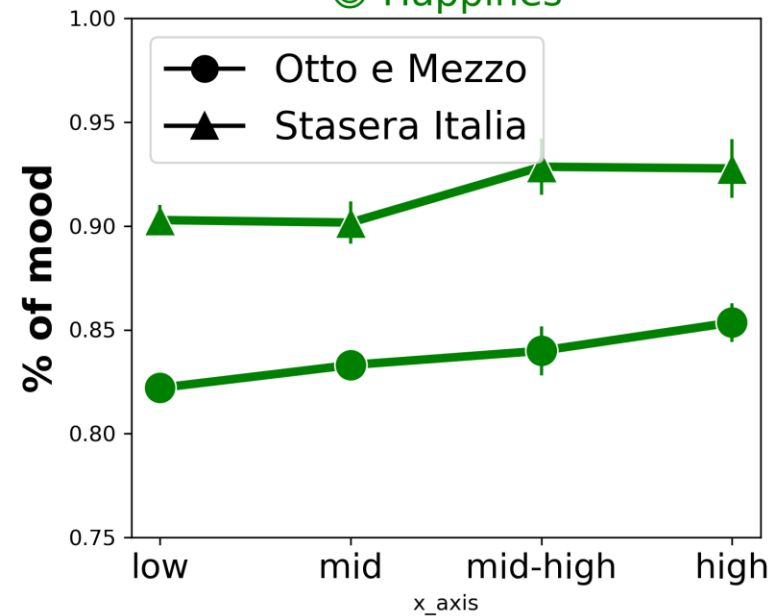


Tone and Topics

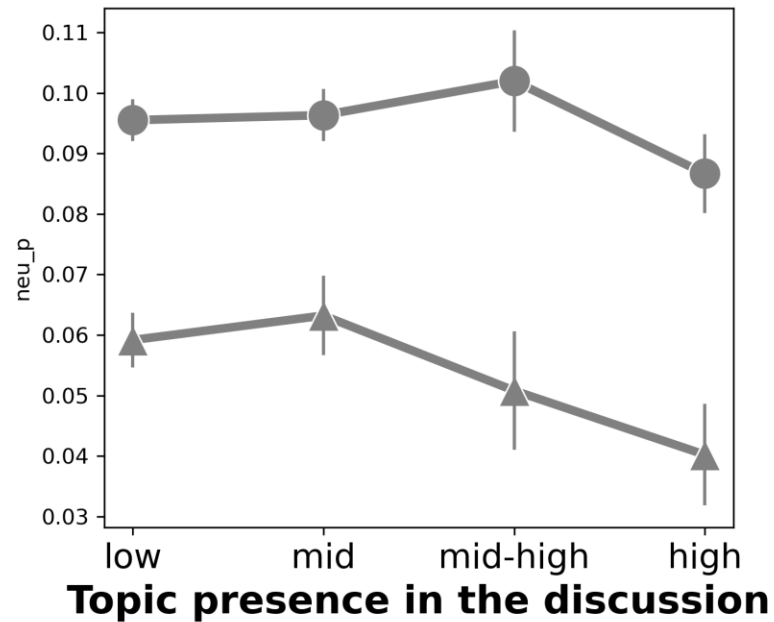
Immigration



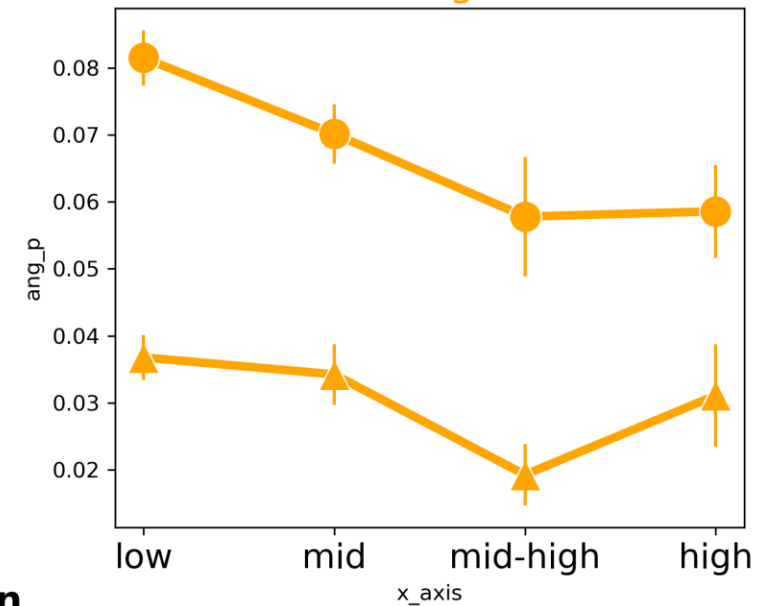
😊 Happiness



😐 Neutral



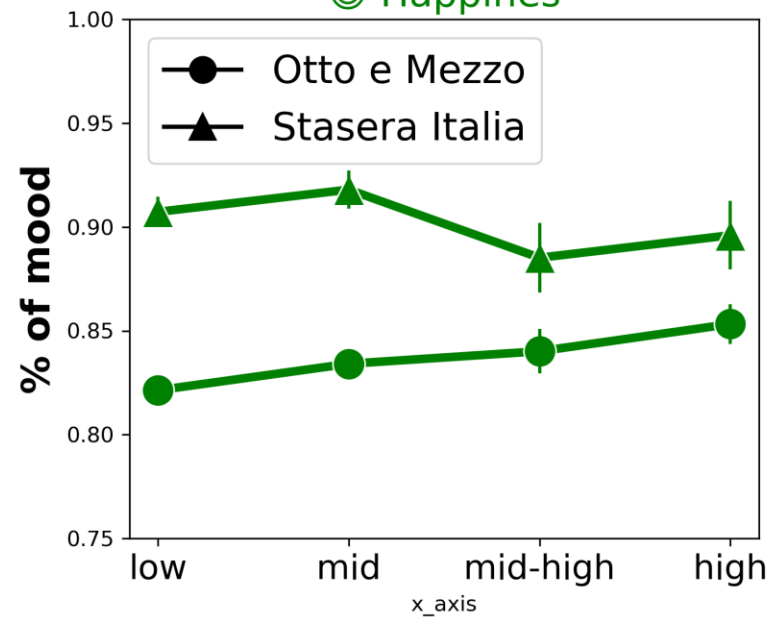
😡 Anger



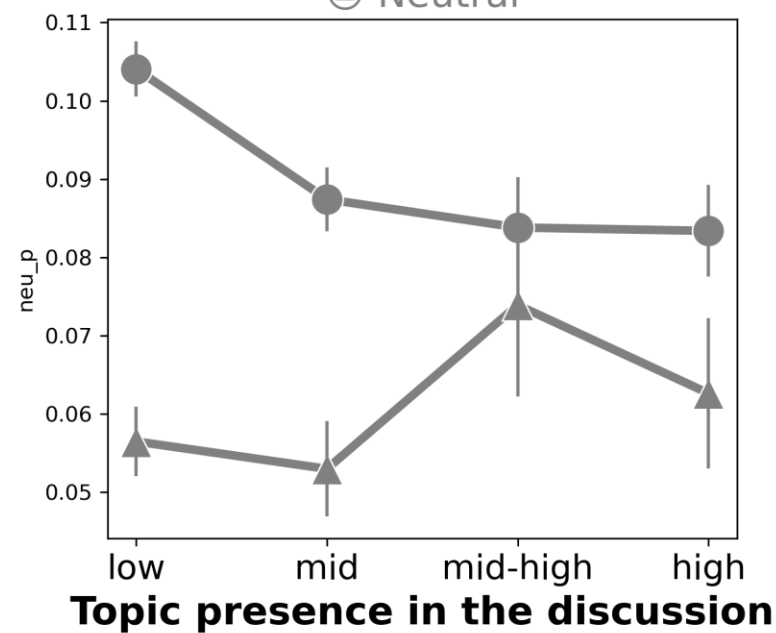
Tone and Topics

Labour 

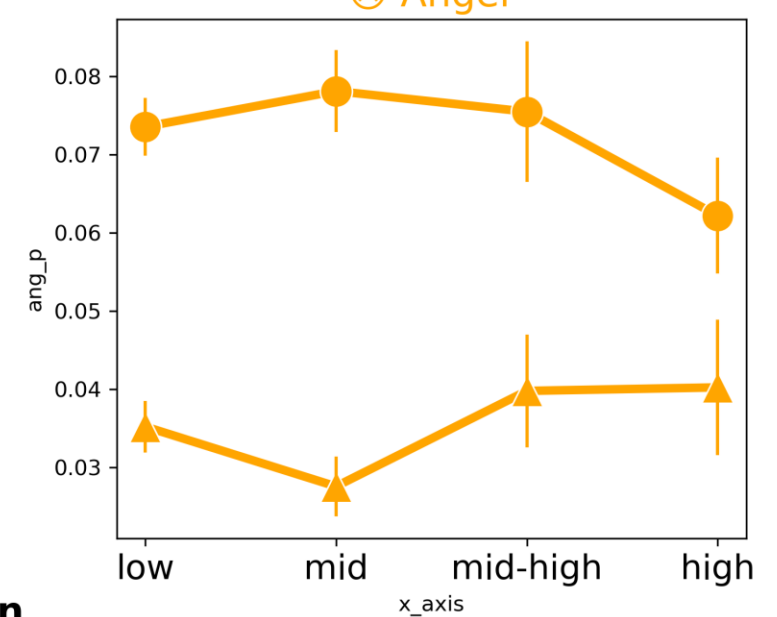
😊 Happiness



😐 Neutral



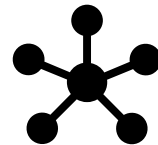
😡 Anger



Face Recognition



Face detection
model



bounding boxes with associated probabilities that
there is a face in each box

We use the *facenet-pythorch* implementation of MTCNN (Multi-Task Cascaded Convolutional Networks) (originally proposed in Zhang et al. 2016) for detection.

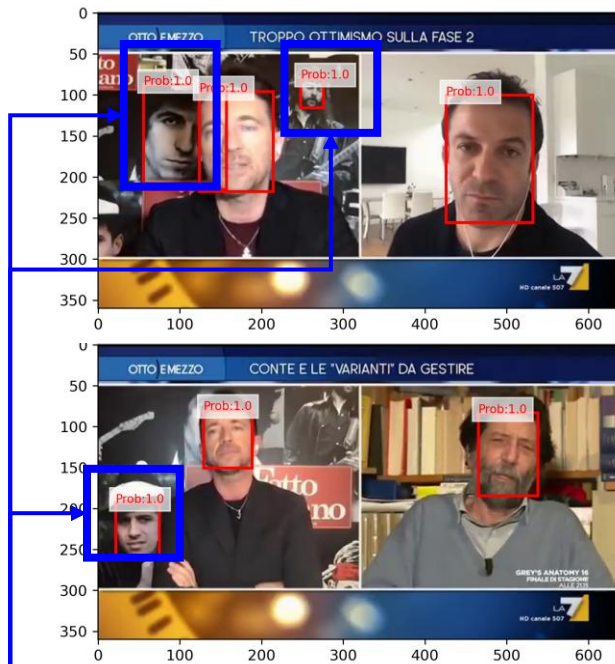
Face Detection

This model has a LFW (*Labeled Faces in the Wild*) accuracy of 0,99 (AUC curve)... **but...**

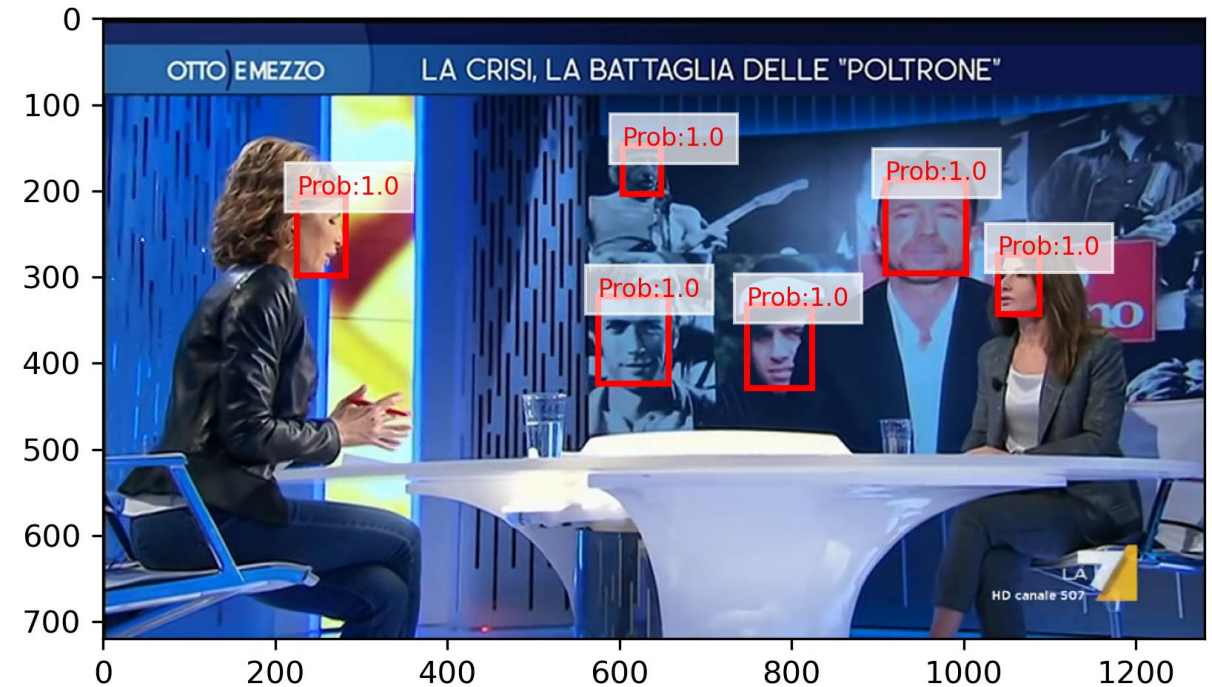
Face Detection *When it works fine..*



Face Detection *When not 1/2*

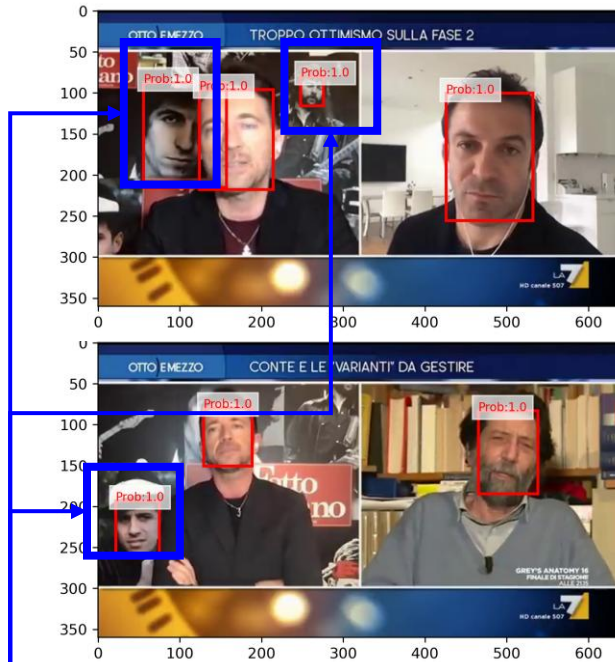


the model has identified faces that are just background photos of one of the speakers

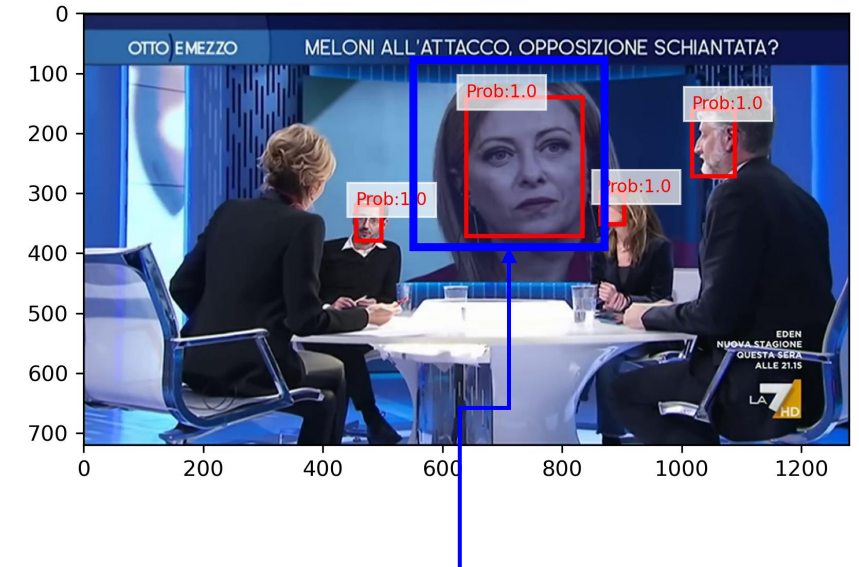
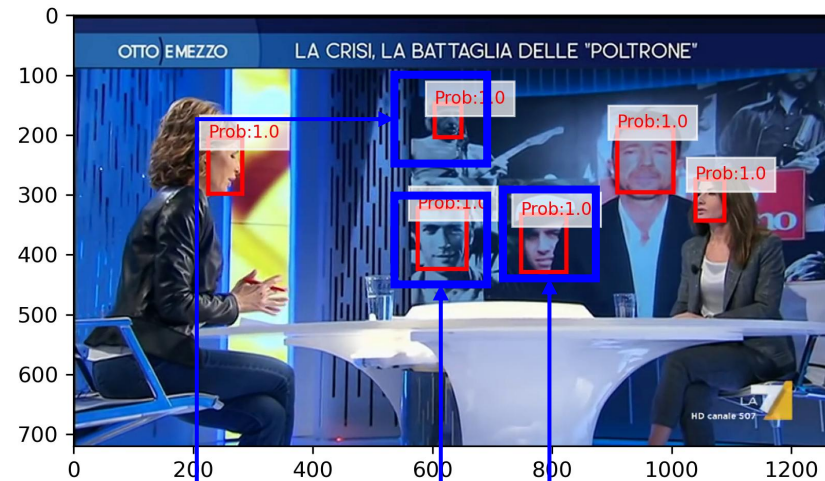


Faces that are not referred to speakers...

Face Detection *When not 1/2*



the model has identified faces that are just background photos



The model identified Giorgia Meloni's face (the Prime Minister). However, she was not participating in the discussion; she was merely shown in a background photo in the studio.

Face Detection –tools – When not 2/2



Background images...

Face Detection – solution to obstacles

- We apply the following filters:
 1. The image has to pass a “size” threshold.
 2. The face identified (see next step) **must** be a speaker in that episode (as identified by the audio).
 3. Only use identification below a certain threshold.

Validation of speaking time



- We compare our data with those of the AGCOM (produced by private companies)
- Those are the data that are also used to verify compliance with *par condicio*
- Note that in the AGCOM data we **only have 105 speakers** (out of 795 we tracks)

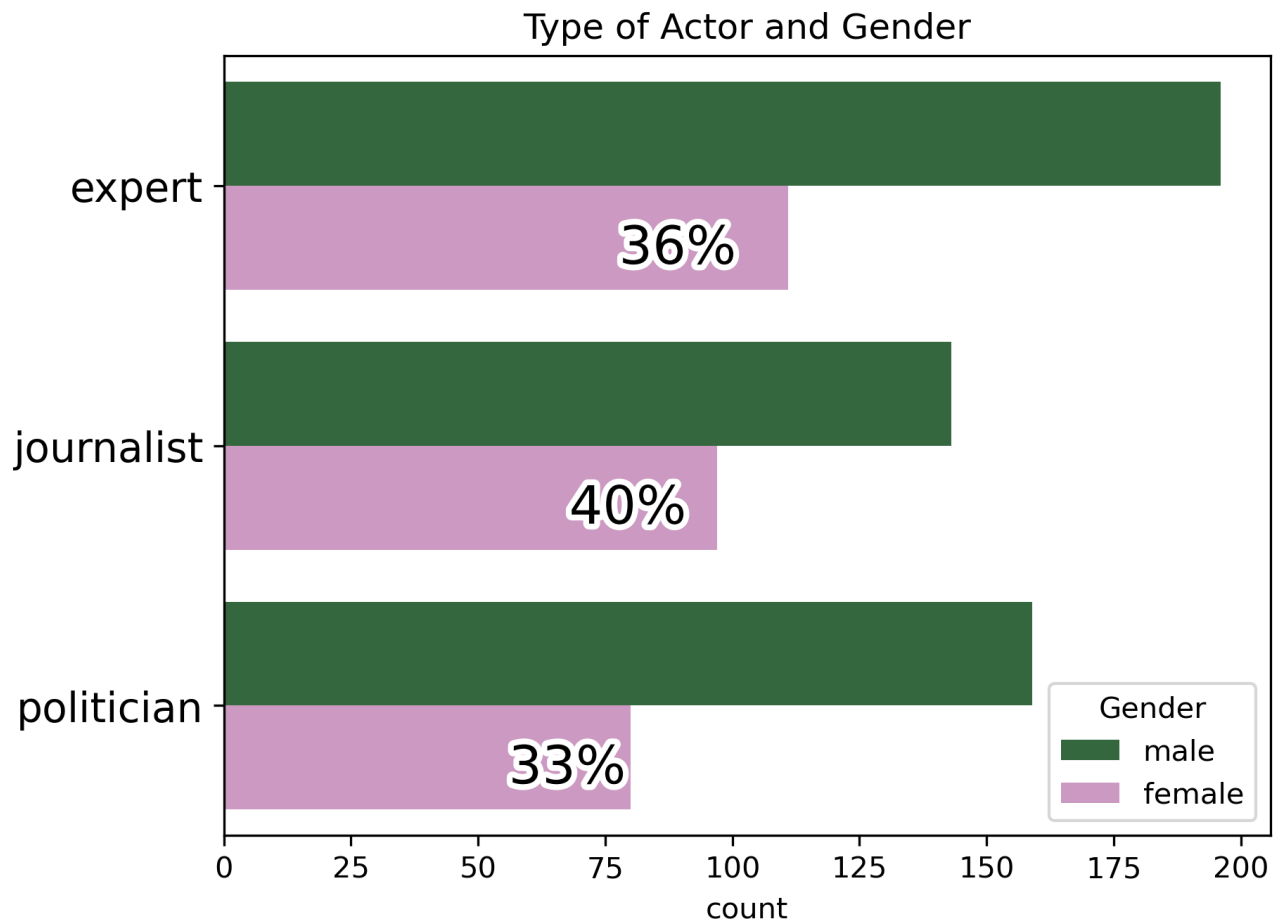
Why Political Talk Show, and Why Italy

As of October 2023, **five out of the seven most important TV channels**, have a PTT in their Prime Time schedule. At the peak of the Prime Time, **between 20.30 and 21.30, it is estimated that almost 40% of the audience are watching a PTT** (almost 9 million people out of a total of 60 million of Italian).

Channel	Time schedule	Name of the show	Presenter	Share (%)	Spectators (million)
Rai 1	20.30 - 20.35	Cinque Minuti	Bruno Vespa	21%	4.4
Rai 2	21.00 - 21.30	Tg2 post	Francesca Romana Elisei	3%	0.7
Rai 3	20.40 - 20.50	Il cavallo e la Torre	Marco Damilano	6%	1.3
Rete 4	20.30 - 21.20	Stasera Italia	Stefania Cavallaro	4%	0.8
La 7	20.35 - 20.15	Otto e Mezzo	Lilli Gruber	8%	1.8
Total				42%	9.05

Auditel data for Prime Time Political Talk show broadcasted on October 23, 2023. The selection of the shows has been restricted to those of a short length (less than hour) that are broadcasted between 20.30 and 21.30, and that have a format that is comparable to *Otto e Mezzo*. Source of data: Auditel data retrieved from online news source.

Type of speakers and Gender



Par condicio



19



Elezioni europee, Boschi: «No ai giornalisti nei talk show politici»

di Redazione politica

La deputata di Italia viva chiede che i rappresentanti della stampa non partecipino alle trasmissioni della Rai o vengano distinti per appartenenza politica. Floridia (presidente Vigilanza): «Proposta problematica»



CORRIERE DELLA SERA

Canali video

CORRIERE TV

ABBONATI

Accedi

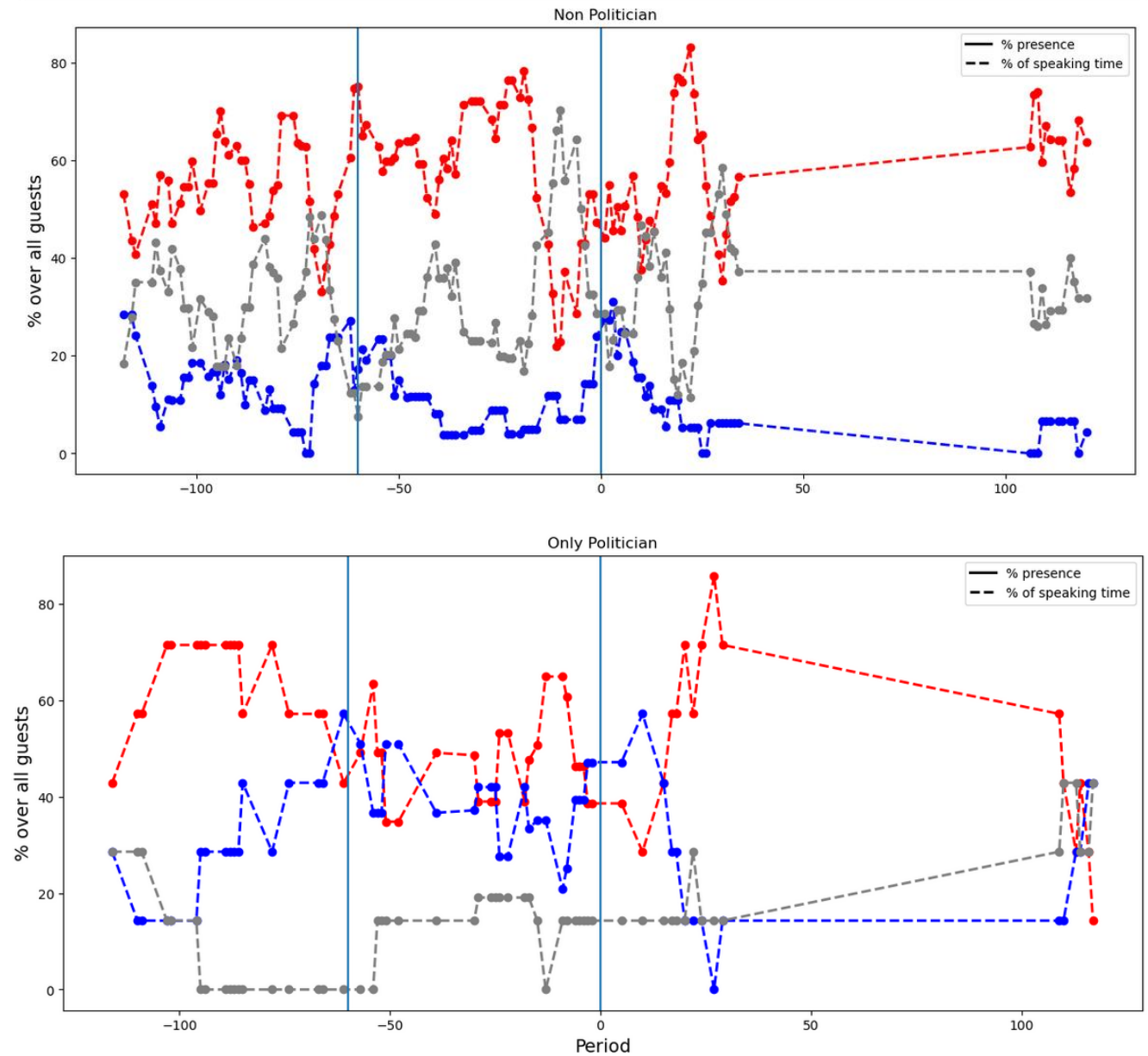
CRONACA

Il comunicato del sindacato Rai letto al Tg1: «Non siamo il megafono del governo»

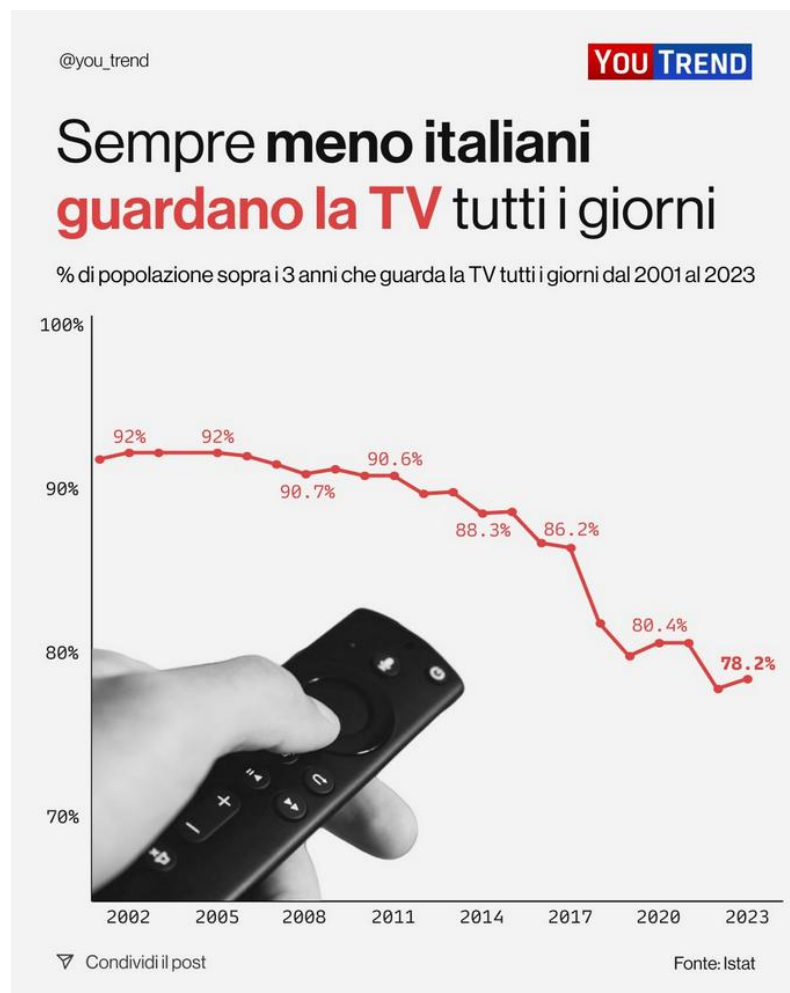
La presidente della Vigilanza, Barbara Floridia, però ha avvertito: «Trovo fortemente **problematica la proposta di accomunare i giornalisti** ai politici e applicare la par condicio anche a loro. C'è anzitutto una difficoltà oggettiva per quanto riguarda l'**applicazione in concreto di una regola del genere**. Ma c'è un problema molto più profondo, quello della libertà della stampa e dei giornalisti: l'art. 21 della Costituzione, subito dopo l'enunciazione del diritto alla libera manifestazione del pensiero, prevede che la stampa non può essere soggetta ad autorizzazioni o censure, e ciò vale anche in campagna elettorale».

Parcondicio

European election of 2019.
Otto e Mezzo.



Why Television



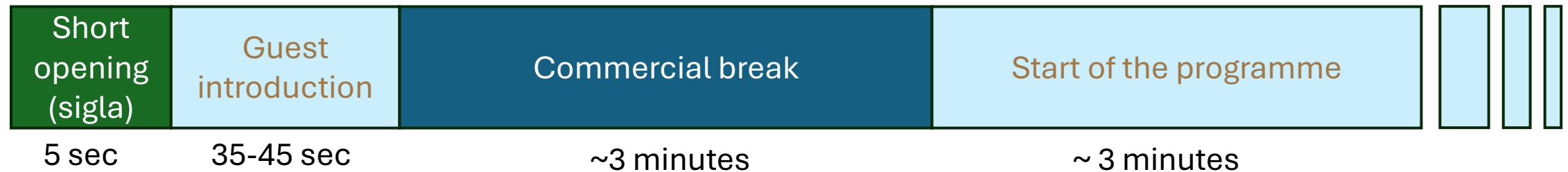
Source: X/@you_trend
9th May, 2024

A quasi-natural experiment

First Impression is the last impression

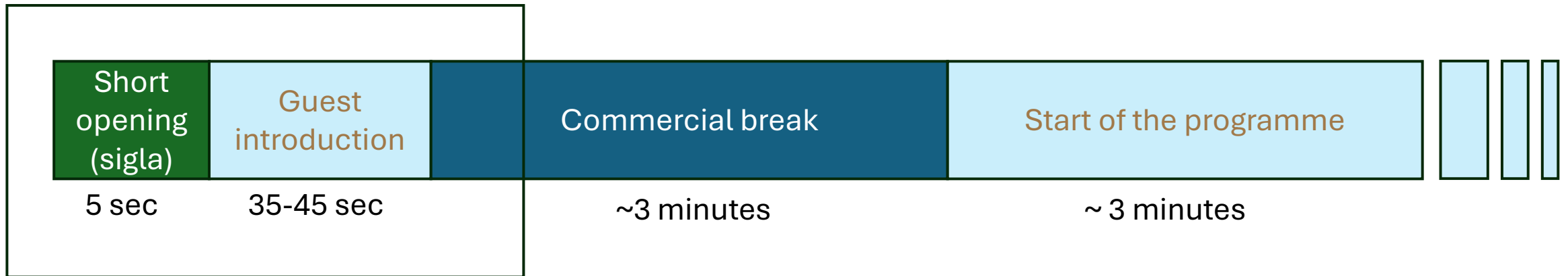
È la prima impressione quella che conta!

A quasi-natural experiment

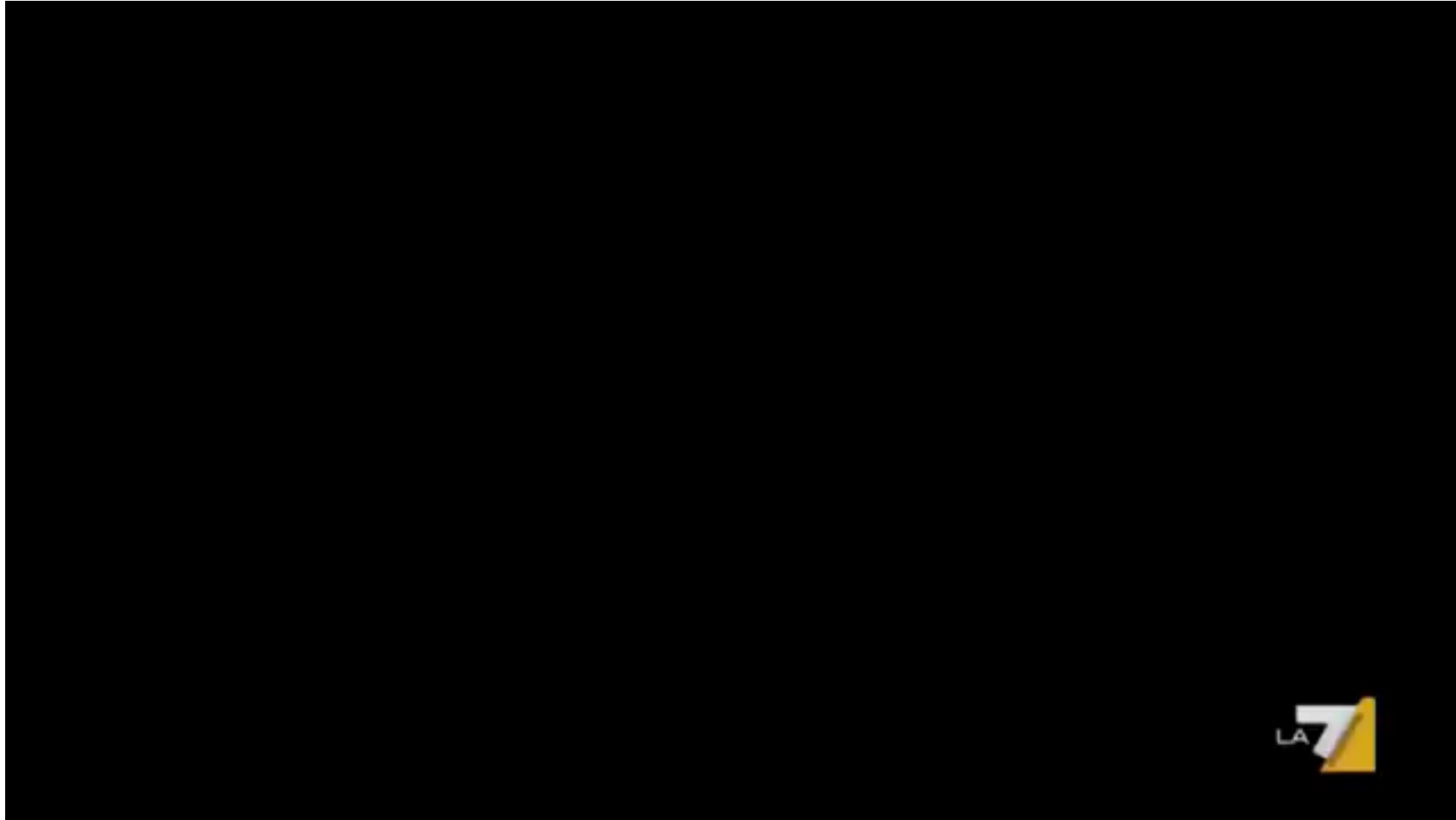


**Analysis before-after Advertisement
Breaks shows very similar results**

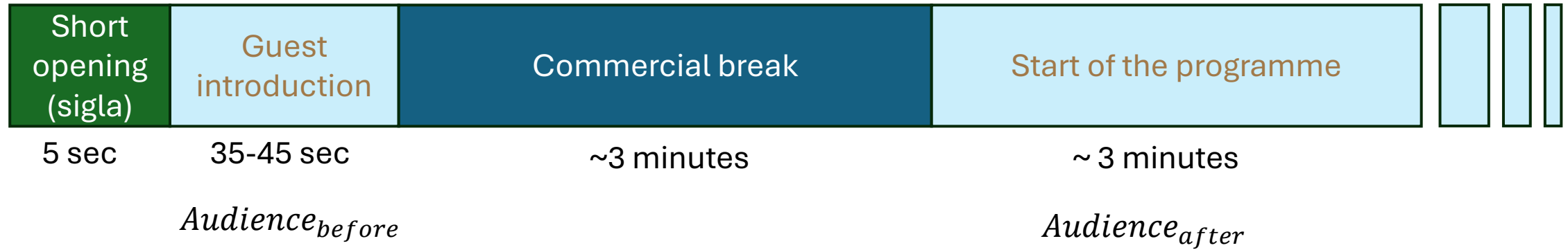
The structure of the programme



The structure of the programme



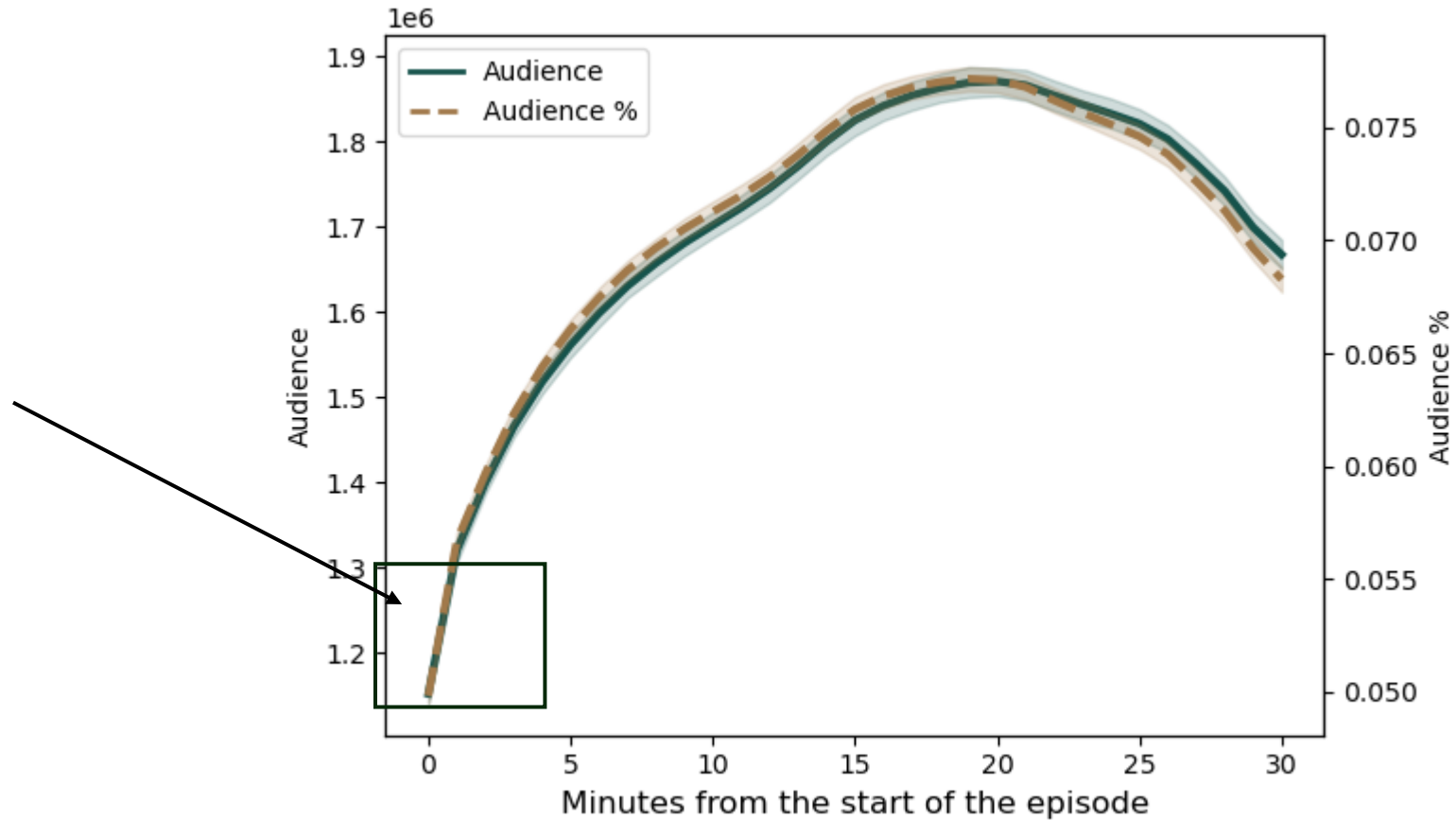
The structure of the programme



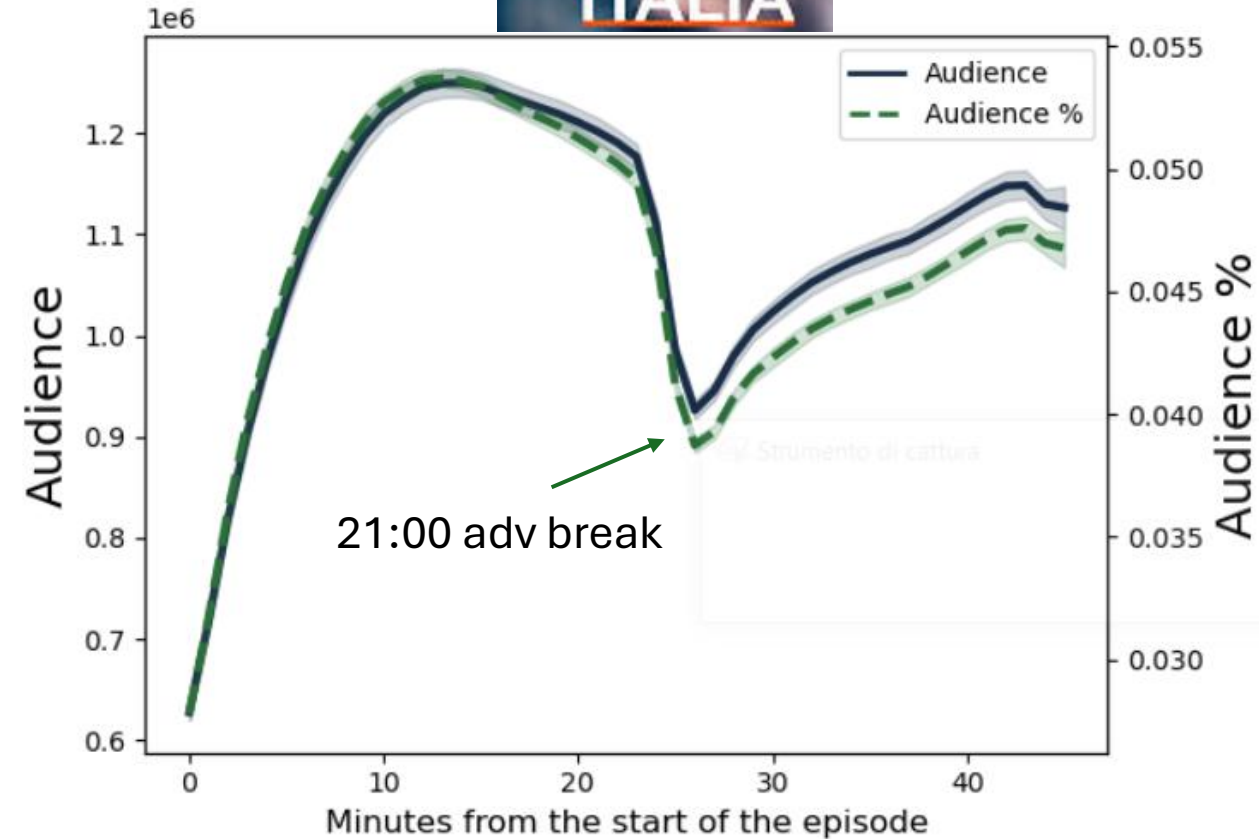
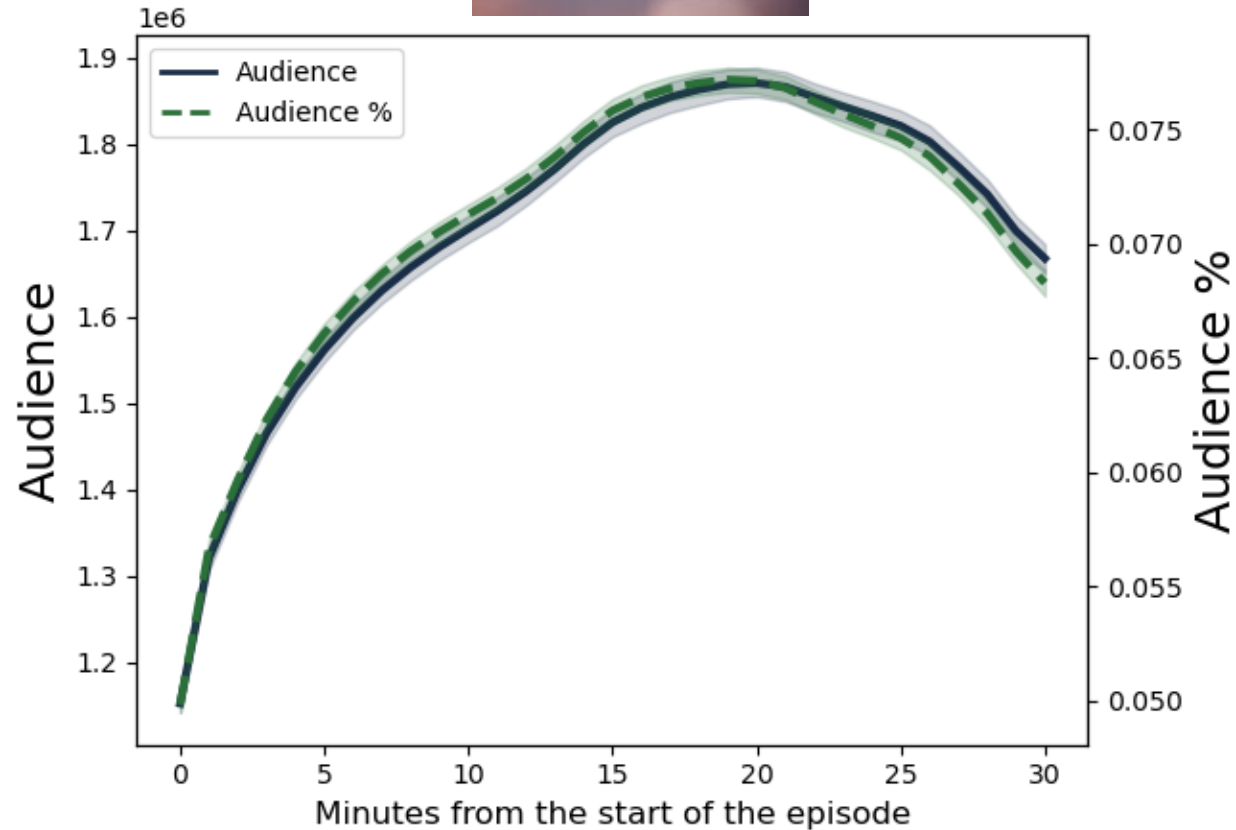
$$\Delta \mathbf{Audience} = Audience_{after} - Audience_{before}$$

$$\Delta \mathbf{Audience}_e = \beta_0 + \beta_1 Gender_e + \beta_2 Left_e + \beta_3 SpeakerType_e + \sum_i^{i-1} \gamma_i Topic_e^i$$

The structure of the programme



Minutes-by-Minute Audience data

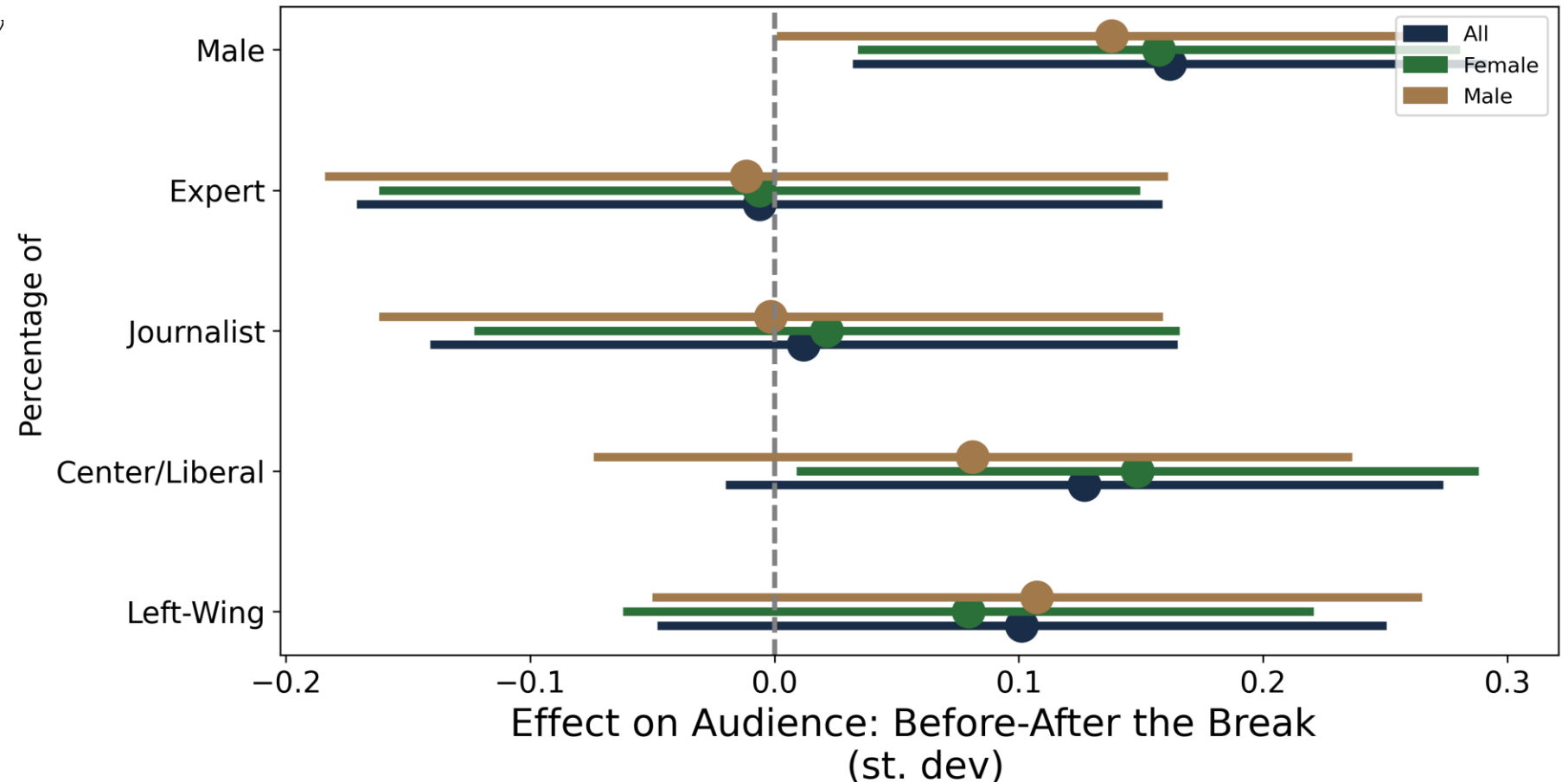


There is clearly a curve (because of the schedule timing, presence of advertising).

Effect of the gender composition of the panel on the shift in Audience after and before the break

$$\Delta Audience_e = \beta_0 + \beta_1 Gender_e + \beta_2 Left_e + \beta_3 SpeakerTy + \sum_i \gamma_i Topic_e^i$$

- Episode-level observations (e)
- $\Delta Audience_e$ is the audience after **minus** the audience before the first commercial break



Contribution

Related literature: content analysis (transcripts)

Analysis of Transcriptions

- Ouss et al. (NBER, 2023)
How television discuss Police Killings
- Hirsch et al (EjPE 2024)
Tonality of TV-NEWS and government bond yields
- Gambaro et al. (CESIFO 2023)
Demand for soft VS bad news with auditel data
- Caprini (JpubEcon, 2023) Pope Breaking News and support for *Forza Italia*



Psy & Political Communication

Dumitrescu (AmBehSci, 2016), Bucy (2010), Bousallis & Coan (PolComm, 2021) Senior et al. (Front Psychol., 2022), Joo & Steinert-Threlkeld (2022)

Why we construct our data from scratch

- **Dataset of television content exists, also in Italy** (e.g. Osservatorio di Pavia)
- Often limited in terms of **sampling and granularity**
- Some of these data are even available (on the AGCOM website), however, they often regards only **prominent political figures, and not as granular compared to what we can obtain starting from scratch.**



Related literature

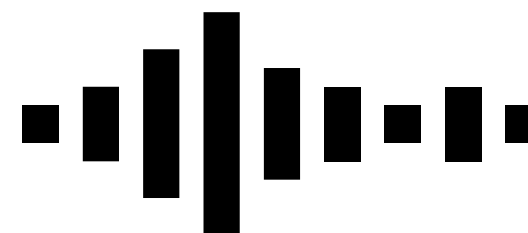
- **Media Bias (on text of newspapers)**
 - Gentzkow & Shapiro (JPE, 2006), Druckman & Parkin (JOP, 2005)
- **Economics literature on TV propaganda**
 - Enikolopov et al. (AER, 2011) (independent TV channel and support for govt.)
 - Burstzyn et al (REStud, 2023) (influence of “Opinion” TV vs “Straight News”)
 - Martin & Yurukoglu (AER, 2017) (fox news and vote for rep.)
- **Berlusconi Television Effect**
 - Barone et al. (AEJ:EconPol, 2015) Introduction of Digital TV and support for *Forza Italia*
 - Durante et al. (AER, 2019) Mediaset and support for *Forza Italia*



Related literature: content analysis (audio analysis)

Audio Tone Analysis

- Gorodnichenko et al. (AER, 2023)
after controlling for the FED actions and the sentiment in the texts, a positive tone in the voices of FED chairs leads to significant increases in share prices
- Handlan & Sheng (mimeo 2023)
Gender and Tone in Recorded Economics Presentations: Audio Analysis with Machine Learning



Related literature: content analysis (image and video)

Image analysis: politicians



- Tarr et al. (Political Analysis, 2023)
Automated coding of Political Video Campaign
- Girbau et al. (Political Analysis, 2024)
Face Detection, Tracking, and Classification from Large-Scale News Archives (US & Japan)
- Caprini (mimeo, 2024)
Visual Bias, Analysis of image preview of US news articles

Image analysis: gender and minorities



- Donggwan Kim et al. (mimeo, 2023)
TV Advertising Effectiveness with Racial Minority Representation: Evidence from the Mortgage Market
- Goli & Mummalaneni (mimeo, 2023)
women Vs men in CNN, Fox News and MSNBC

U.S. TV annotations



Japanese TV annotations



Motivation

Political Leaning Classification

We finetune the Italian BERTino model with speeches of (labelled) Politicians in

- Chamber of Deputies
- Political Talk Show.

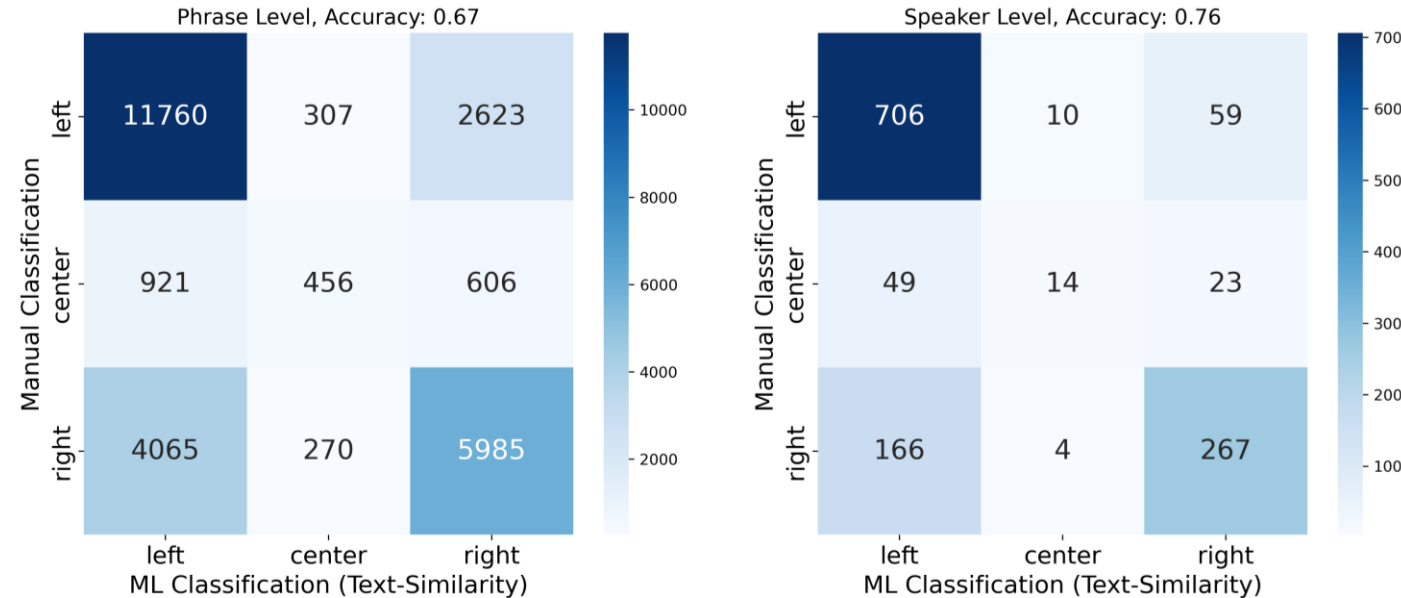
The idea: The model would predict how similar is a given speech to what politicians says.

The model performs relatively well on a test set comprised of politicians only: ~67-75% of the cases are correctly predicted....

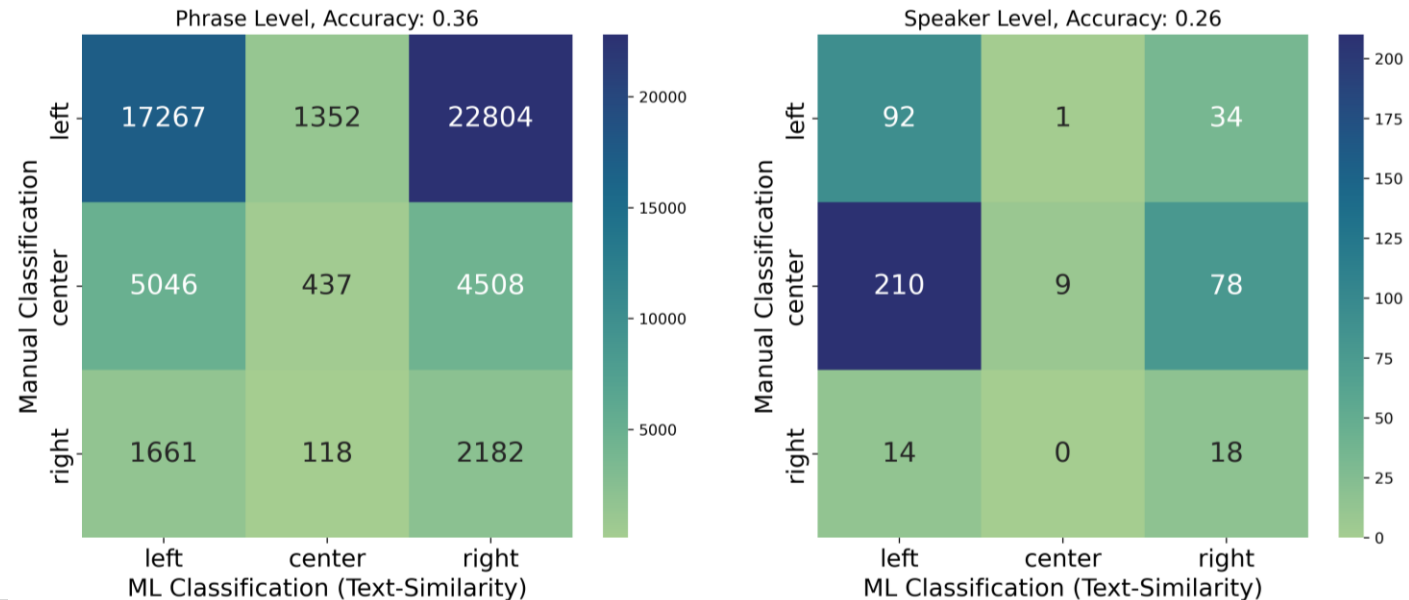
...much worse when asked to predict the political leaning of journalists and expert, ~26% (here the reference is OUR labels).

You could say that OUR labels are wrong. But let's have a look at people we label "left" but the model predicts "right".

Performance on Politician Test Set



Performance on Journalists and Experts Test Set



Example of misclassification

```
1 check_speaker_unique.loc[(check_speaker_unique["label"]=="left")&(check_speaker_unique["pred_bertino"]=="right")].head(10)
```

[264] ✓ 0.0s

...

	speaker_name	label	pred_bertino
8	alberto negri	left	right
40	andrea purgatori	left	right
42	andrea scanzi	left	right
58	antonio padellaro	left	right
70	bianca berlinguer	left	right
124	donald sassoon	left	right
140	emiliano fitti	left	right
146	eugenio scalfari	left	right
153	fabrizio d'esposito	left	right
187	furio colombo	left	right

Similar (if not worse) results if we use pretrained models on twitter posts.

 **Hugging Face** Model:

 **MattiaSangermano** / **bert-political-leaning-it**  like 2

Text Classification Transformers PyTorch TensorFlow Safetensors politic-it Itali

License: apache-2.0

Model card Files and versions Community 1

≡ **MattiaSangermano/bert-political-leaning-it**

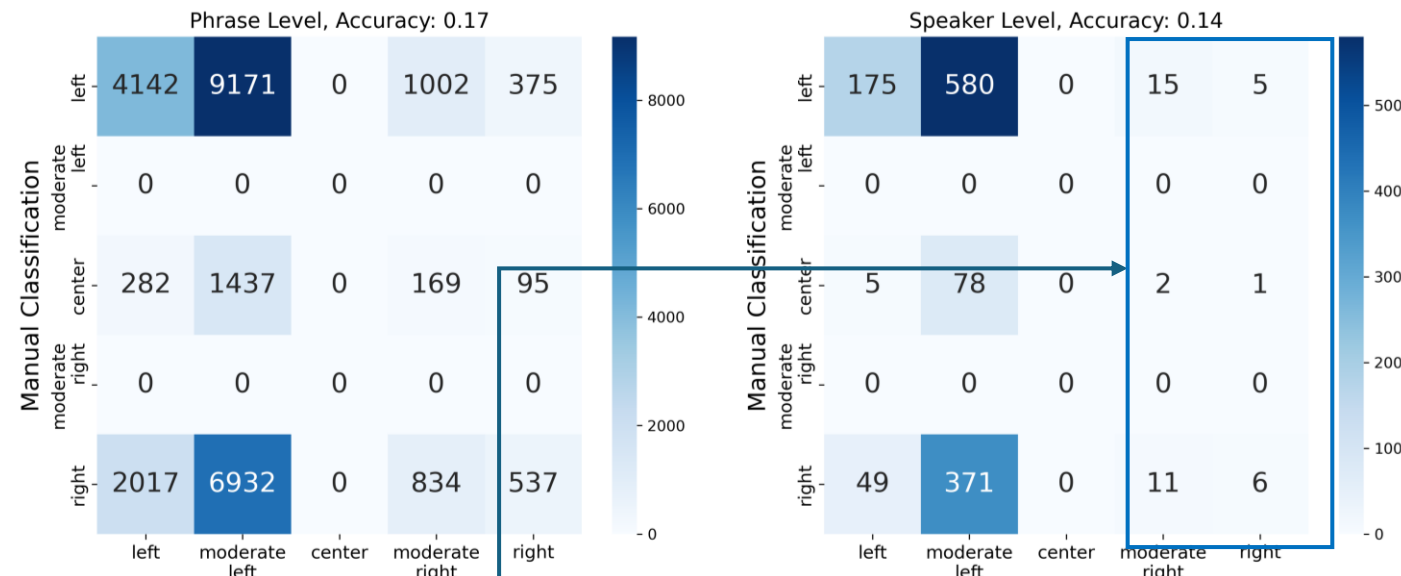
This model categorizes the political leaning of an Italian sentence into 4 categories:

`moderate_left`, `left`, `right`, `moderate_right`. The model is a fine-tuned version of [neuruly/bert-base-italian-cased-sentiment](#).

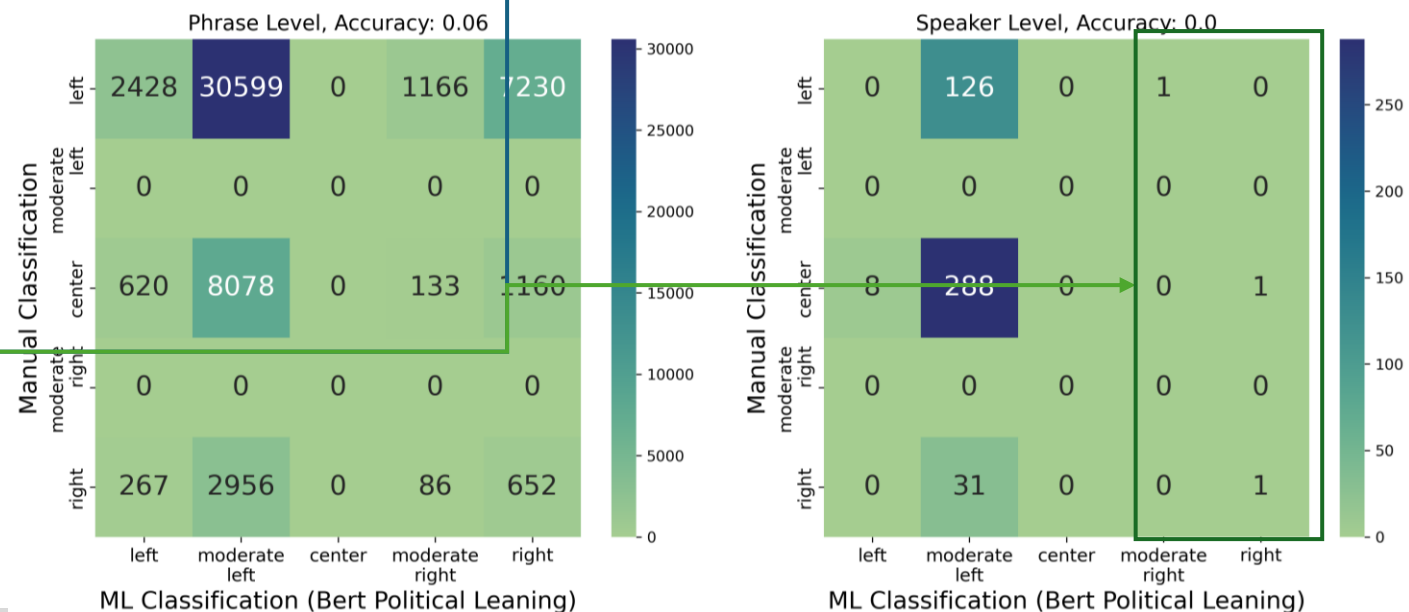
- Developed by: [Mattia Sangermano](#) and [Fabio Murgese](#)
- Model type: Bert
- Language(s) (NLP): it
- License: Apache 2.0

Almost no prediction of right-wing speakers

Performance on Politician Test Set



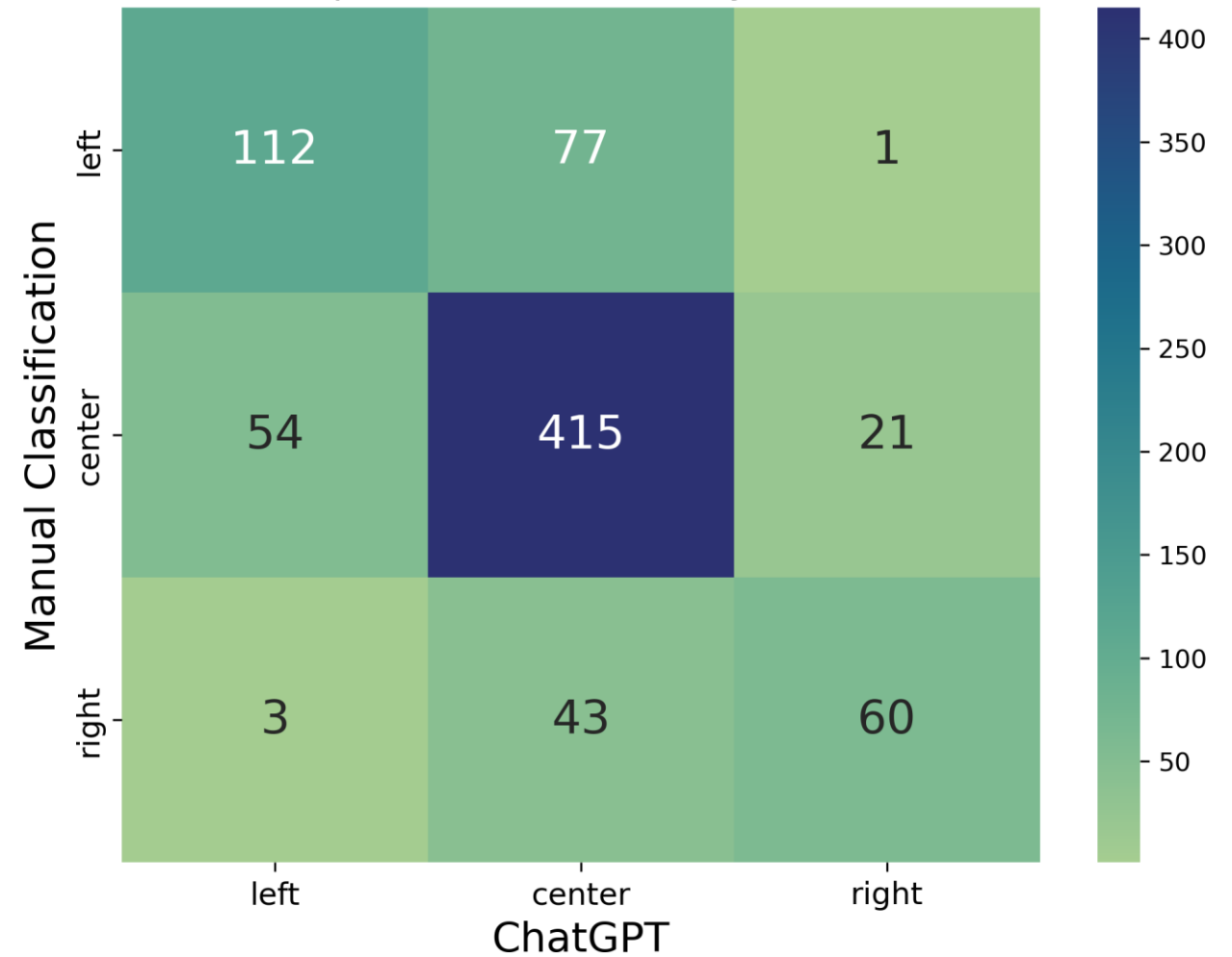
Performance on Politician Test Set



- ChatGPT appears to work much better.
- There are almost no big mistakes (left!=right).
- ChatGPT can retrieve **contextual information** and **does not only relies on “what is said”** in the talk show (as traditional models do).
- These results are in line with **some recent literature showing the efficacy of ChatGpt and other LLM in replicating evaluation of political leaning that resembles that of experts** (Hernandes, 2024; Mens & Gallego, 2023).
- We are well aware of other strands of literature that have shown that these models (especially ChatGpt) might **be biased towards a liberal stance** (Motoki et al., 2023; Rozado, 2023). Thus, the relatively coherence between our manual classification and the one provided by ChatGpt **might simply reflects common biases**.
- In absence of expert surveys measures (that costs \$\$), this is almost the best we can do.
- Other work in prog:
 - “Aligned models” (e.g. use other LLM)
 - Network measures (althought not always possible for all speakers).
 - Run a small survey to validate manual approaches (\$\$).

Performance On Journalists and Experts

Speaker Level, Accuracy: 0.75



Avrei bisogno che tu mi aiutassi a classificare la posizione politica di alcuni personaggi pubblici che sono apparso in diversi talk show televisivi italiani.

Per fare questa classificazione, puoi utilizzare informazioni sulle sue dichiarazioni pubbliche, pubblicazioni (ad esempio libri o articoli) o sulla sua attività in generale.

La classificazione può essere di tre tipi: "destra", "sinistra", "centro" o "indipendente".

L'idea è che i personaggi di "destra" sono quelli più vicini a posizioni di tipo conservatore, e alle idee di partiti di destra come la lega, i fratelli d'italia, ma anche forza italia.

I personaggi di "sinistra" sono quelli più vicini a posizioni di tipo progressista, e alle idee di partiti come il partito democratico, sinistra ecologia e libertà e simili.

Infine, i personaggi di "centro" sono quelli con posizioni tendenzialmente liberale, ma nè troppo di destra nè troppo di sinistra. Ovvero quelli con posizioni simili a quelle di Matteo Renzi o di Carlo Calenda, o comunque con posizioni considerate "moderate".

Infine, puoi classificare come "indipendenti" quelli per cui la classificazione ti sembra molto incerta, o che ad esempio non hanno quasi mai avuto esternazioni con chiari connotati politici.

Ti prego inoltre ti riportarmi una breve motivazione della classificazione (non più di 40 parole al massimo).

La tua risposta deve avere il seguente formato:

NOME: nome del personaggio

CLASSIFICAZIONE: (che può essere solo "destra", "sinistra", "centro", o "indipendente").

SPIEGAZIONE: (una breve descrizione delle motivazioni che ti hanno portato a questa classificazione)

INDIVIDUAZIONE: (se pensi di aver capito chi è il personaggio in questione, la risposta può essere solo "si","no","forse")

Se non sei sicuro di aver capito chi è il personaggio in questione, riportalo nella casella individuazione.

Ti riporto di seguito le persone che devi classificare (tra parentesi ti riporto alcune caratteristiche per aiutarti a individuarle).

Se sei fortemente indeciso ti prego di classificarle come "indipendente"

La persona che devi classificare sono :