Framing of Immigration: A Swiss Media Discourse Analysis Using LLM's

Capstone project

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1 Introduction

This paper investigates how immigration is discussed in Swiss media, specifically in the context of national initiatives and referendums. Using large-scale newspaper data and employing large language models for classification tasks, the project analyzes how immigration is framed, the emotional tone applied to it, and whether oppositional constructions ("us" vs. "them") are present. It focuses media discourses during moments when political stakes were especially high, which is, during direct democratic votes, and examines how immigration is discussed by ideologically differing newspapers.

Building on established literature, the basis of this project is the assumption, that media plays an important role in the perception of diverse issues. That is not only through what they cover, but how they do so, namely through the use of certain linguistic concepts or the accentuation of certain aspects. Prior research has shown that media ownership and political orientation can influence the visibility and framing of certain topics. In Western Europe, and Switzerland as well, immigration has become an increasingly salient and politicized issue. Over the past two decades, Switzerland has held numerous initiatives and referendums directly addressing immigration, such as for example the "Masseneinwanderungsinitiative" ("Mass-immigration Initiative") in 2014 or the "Begrenzungsinitiative" ("Restriction Initiative") in 2020. Most recently, the "Swiss People's Party" (SVP) launched a new initiative, called "Nachhaltigkeitsinitiative", which again addresses the topic of Swiss immigration.

In a direct democratic country like Switzerland, media discourse is particularly relevant. As the Swiss people vote directly on these initiatives, public narratives, influenced by media

consumption, can influence perceptions of migrants and possibly even influence policy support. This project further seeks to expand the discourse analysis by utilizing the recent advances in large language models to scale up what has traditionally been small-scale qualitative work. Features such as framing, sentiment, and opposition, which have often been identified manually before, are now extracted in a more systematic and large-scale way.

In summary, this project aims to analyze media discourse of ideologically different media outlets at times where immigration is especially politicized and stakes are high - during the time of initiatives. The study therefor tries to answer the following research question:

How is immigration represented in Swiss media coverage during politically salient moments?

More precisely, the following sub-questions should be answered:

- *What framing strategies and sentiments are used to define immigration and its implications in Swiss media during national initiatives?*

- *To what extent are oppositions constructed or reinforced in immigration coverage*

- *How does the use of these concepts vary across ideologically diverse newspapers?*

2 Theory

The theoretical basis for this project includes framing theory, political communication and media and the construction of oppositional identities.

1. Framing and Media Representations

   Framing theory explains how medias influence perception by emphasizing certain aspects of an issue. Entman (1993) defines framing as selecting and emphasizing specific elements of reality to promote a particular interpretation. Immigration is often framed through economic, cultural, security, or humanitarian lenses (Eberl et al., 2018). Articles can also vary in emotional tones, such as fear or sympathy, which further shape public opinion (Nabi, 2003).

2. Media, Ideology, and Direct Democracy

   In Switzerland's system of direct democracy, media plays a crucial role in shaping public debates around referendums and initiatives. Newspapers can act both as agenda-setters (McCombs & Shaw, 1972) and interpreters of political conflict. Research shows that ideological orientation and media ownership affect how issues like immigration are covered (Spirig, 2024; Strömbäck, 2008). During initiatives, when political stakes are high, media framing may help legitimize or challenge particular positions.

3. Identity and Oppositional Framing

   Finally, this project draws on discourse theory to analyze how media construct boundaries between "us" (the Swiss) and "them" (immigrants). Oppositional identities are formed through language, often by assigning contrasting traits to in- and out-groups

(Wodak et al., 2009, p. 33-35). In Switzerland, the SVP has played a key role in promoting exclusionary narratives (Skenderovic, 2009, p. 7-9), which could be reinforced or challenged in media discourse.

3 Data & Method

3.1 Article collection

Relevant newspaper articles were collected via the Swissdox API, which provides a wide range of Swiss news outlets. The sample collected contains only articles written in the german language.

Selection criteria included:

Keyword filtering: Articles were retrieved based on keyword searches intended to capture wide range of immigration-related articles. The final list of keywords included: einwander* zuwander* asyl* flüchtling* Personenfreizügigkeit, überfremdung, migrationspolitik, migrationsabkommen, abschiebung, integrationspolitik
These keywords were selected after initial testing and revising of sample articles to minimize irrelevant results.

Newspapers: Seven major Swiss newspapers were selected to represent a range of ideological orientations:

- Basler Zeitung (BAZ) - right wing after ownership changed

- Blick - tabloid

- Wochenzeitung (WOZ): left-wing

- Weltwoche (WEW): right wing

- SRF: public boradcaster, politically neutral

- Neue Zürcher Zeitung (NZZ): economically liberal/rather conservative

- Tagesanzeiger (TA) - centrist

Only print versions of each newspaper were used to avoid duplicates and ensure consistent article structure over time, as some articles were retrieved from the early 2000's.

Time frames: To focus on moments of increased politicization, four Swiss initiatives related to immigration were selected. For each initiative, a four week time period was defined, three weeks before and one week after the respective vote. The initiatives include the following:

- "Initiative für eine Regelung der Zuwanderung" ("Initiative for regulating immigration"), vote on 24.09.2001, time frame: 2000-06-24 to: 2000-10-24

- "Initiative gege Masseneinwanderung" ("Initiative against mass-immigration"), vote on 09.02.2014, time frame : 2013-11-09 to: 2014-03-09

- Initiative "Stop Überbevölkerung" (Initiative "Stop overpopulation"), vote on 30.11.2014, time frame: 2014-08-30 to: 2014-12-30

- "Begrenzungsinitiative" ("Restriction initiative"), vote on 27.09.2020, time frame: 2020-06-27 to: 2020-10-27

In total, the final sample based on these filters contained 1731 articles.

3.2 Classification via GPT API

To analyze the articles, the OpenAI GPT-4.0 API was used to perform classification tasks. The classification was based on a custom prompt that defined five separate tasks. Each article was sent into the model in full text, with a detailed instruction. The full version of the prompt can be found in the appendix.

Task Overview Each article was coded along five dimensions:

Task 1- Relevance:

Binary classification:

1: Relevant — the article discusses immigration in the Swiss context.

0: Not relevant — immigration is not discussed meaningfully, or only in a foreign/non-Swiss context.

Task 2 - Indirect Mention of Immigration

Binary classification:

1: Immigration is mentioned briefly or indirectly, but is not the main topic.

0: Either immigration is not mentioned at all, or immigration is the main topic.

Task 3 - Framing of Immigration

1: Economic

2: Cultural/Identity

3: Security

4: Humanitarian

5: Political/Legal

0: not applicable In the final evaluation, categories 3 (security), 4 (humanitarian) and 0(not applicable) were collapsed into a new label "9 = other", due to their low frequency.

Task 4 - Sentiment Towards Immigration

1: Hopeful.

2: Sympathetic.

3: Neutral.

4: Concerned / Uncertain.

5: Fearful.

6: Angry.

7: Dismissive / Downplaying.

For the analysis, due to the low frequencies of some frames, categories were recoded as fol-

lows:

Sentiment 1 (hopeful) and sentiment 2 (sympathetic) were merged into a category "8 - positive".

Sentiments 5 (fearful), 7 (dismissive) and 0 (not applicable) were collapsed into a new category "9 - other".

Task 5 - Constructed Opposition

1: An opposition is present.

0: No opposition is present.

Each task included definitions, a more detailed explanation of the categories as well as example sentences and categorizations. Further, the GPT model was instructed to act as an expert on Swiss politics, political communication and media discourse. Several test runs and prompt refinements based on the test runs were conducted before processing the full data set, to ensure the validity and consistency of the classification. For example, explanations were modified and examples of edge cases were added. After multiple test runs and quality checks, the full data set was processed.

Final Sample:

Out of the initial 1731 articles, 706 could not be classified by the API. Of the remaining 1025 articles, the relevance task (Task 1) identified 772 articles as relevant for the research question. These 772 articles comprise the final data set which was used for the analysis.

3.3 Results

The final data set consists of 772 articles. This includes 169 articles of the Basler Zeitung (BAZ), 175 articles of the Tages-Anzeiger (TA), 172 articles of the Neue Zürcher Zeitung (NZZ), 124 articles of SRF, 68 articles of Blick, 53 articles of Die Weltwoche and 15 articles of the WOZ.

3.4 Analysis of frames

To examine the newspaper's use of different frames a multinominal logistic regression was conducted, with economic frame (frame 1) as the reference category. Key results are as follows:

- Some outlets showed higher odds of using cultural frames over economic ones. For example, Die Wochenzeitung and Die Weltwoche had positive coefficients for this comparison (1.13 and 0.72 respectively), suggesting these outlets are more likely to frame immigration culturally than economically.

- SRF and Neue Zürcher Zeitung (NZZ) had positive coefficients, indicating they are more likely to use a political/legal frame than an economic one, particularly SRF (coefficient = 1.07).

- The model suggests a reasonable model fit (Residual Deviance = 1020.71, AIC = 1062.71), however standard errors for most coefficients are very large, which suggests that they may not be statistically significant.

The following visualization shows the predicted probabilities of frames by newspaper.

Predicted Probabilities of Frame
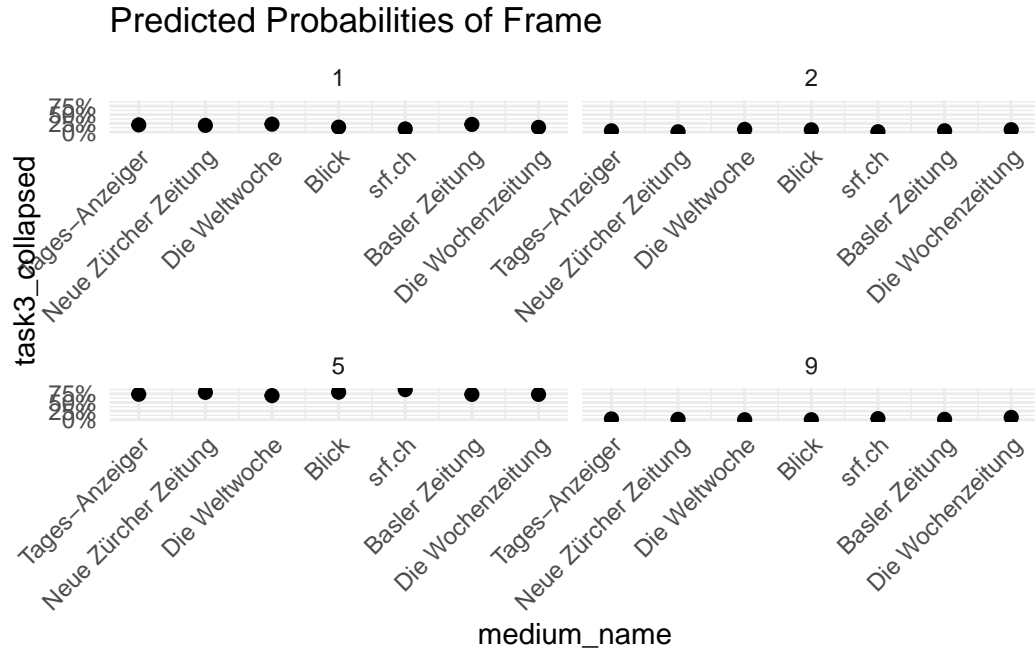

3.5 Analysis of sentiment

To assess how the newspapers differ in sentiment used when discussing immigration, a multi-nominal logistic regression was run, with sentiment type as outcome and media outlet as predictor. The neutral tone acts as reference category. Key results are as follows:

- Most media outlets did not show strong deviations from neutrality. However, Die Wochenzeitung had a positive coefficient (1.30), suggesting that compared to neutral tone, it was more likely to use a concerned tone.

- Die Weltwoche and Die Wochenzeitung had relatively strong positive coefficients (1.42 and 2.20), suggesting these outlets may use more emotionally critical or accusatory language than others. SRF and NZZ, in contrast, had negative coefficients, indicating they were less likely to express anger relative to a neutral tone.

- Strong negative coefficients for Blick (–13.58) and Weltwoche (–12.48) indicate that positive sentiment was very unlikely in these outlets. Die Wochenzeitung stands out

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with a positive coefficient (2.31), indicating they used a rather hopeful or sympathetic tone.

- However, some sentiment categories were underrepresented in the data set, eading to extreme or unstable coefficiets for certain outlets. esults should be interpreted with caution.

The following visualization shows the predicted probabilities of sentiment by newspaper.

Predicted Probabilities of Sentiment
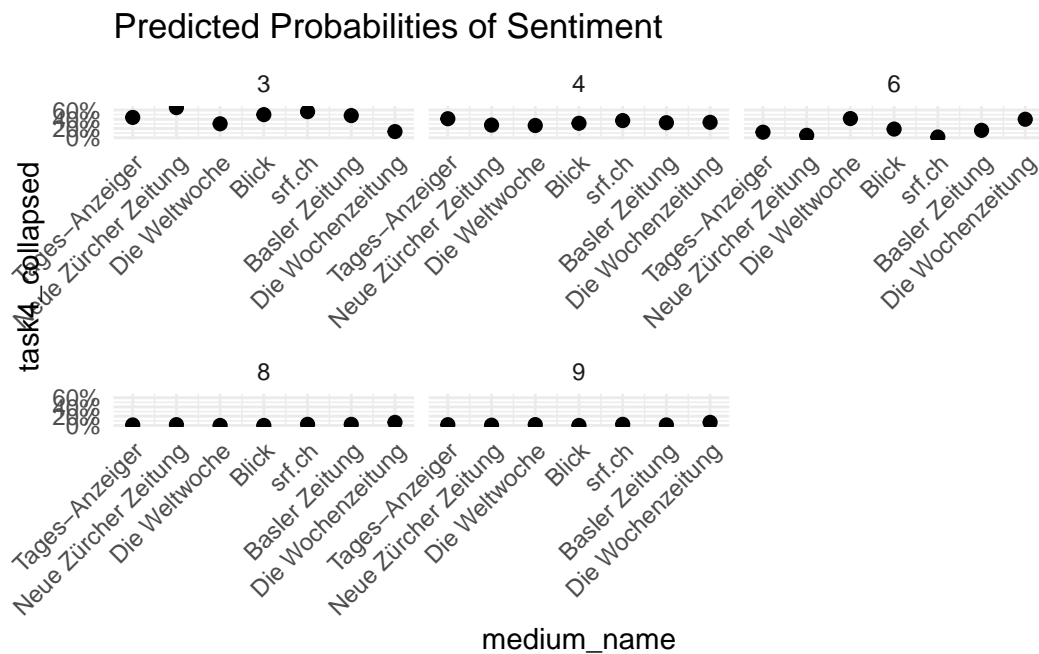
3.6 Analysis of constructed oppositions

To examines the presence and variation of constructed oppositions, a binary logistic regression was run. Constructed opposition (code_5) acts as the dependent variable, the newspapers as the predictor. Some key results are as follows:

- Die Weltwoche shows a significantly higher likelihood of constructing oppositions compared to the baseline (B = 1.10, p < 0.001), suggesting a stronger tendency to emphasize divides between "the Swiss" and migrants.

- Die Wochenzeitung also had a significantly higher probability (B = 1.27, p < 0.05), though this result should be interpreted cautiously due to a smaller sample size.

- In contrast, Neue Zürcher Zeitung was less likely to have oppositional framing present (B = -0.54, p = 0.049).

- The remaining outlets, including Blick, Tages-Anzeiger, and SRF, did not show statistically significant deviations from the baseline.

The following visualization shows the predicted probabilities of constructed opposition by newspaper.

Predicted Probability of Constructed Opposition by Media Out
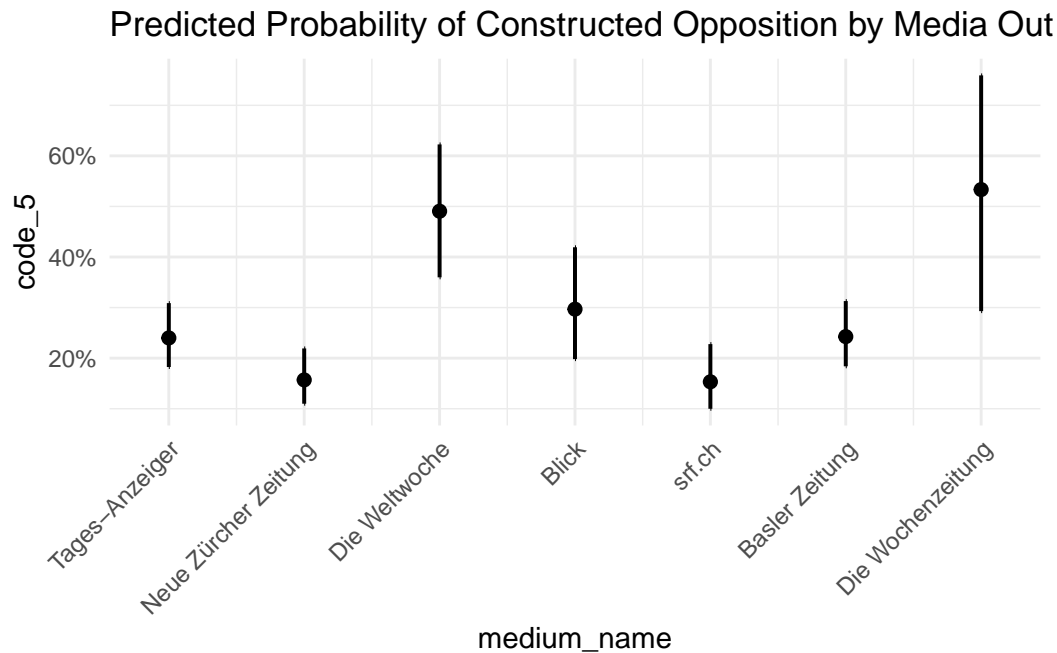
3.7 Conclusion

This project examined how Swiss newspapers represent immigration in the context of politically salient moments, specifically during national initiatives and referendums. Using a large scale data set and a classification approach using large language models, the analysis focused on identifying patterns in framing, sentiment and the construction of oppositional identities

("us" vs. "them") across ideologically diverse newspapers.

The analysis reveals that political and economic frames dominate the newspapers when it comes to immigration. Right-leaning newspapers, like Die Weltwoche, are more frequently employ oppositional or cultural framings, portraying immigrants as culturally threatening or different, while liberal or centrist outlets(NZZ, SRF), focus on more on political or legal aspects, like portraying immigration in terms of referendums or institutional decisions.

Emotional tone, overall, is mostly neutral or concerned, indicating a tendency towards moderate reporting. Although certain outliers were found breaking this pattern: the right-wing newspaper Die Weltwoche, for example, appears more likely to express an angry sentiment, while the left-wing newspaper Die Wochenzeitung uses positive sentiments, such as hopefulness or sympathy. This suggests that even though reporting, especially with more centrist or politically neutral newspapers, remain less polarized,discourse on immigration can still be influenced by newspaper ideology or ownership.

The use of constructed oppositions, "us vs. them", is not uniform across the media landscape. Die Weltwoche and, somewhat surprisingly, Die Wochenzeitung showed higher likelihoods of constructing such contrasts between "the Swiss" and migrants. This indicates that oppositional framing might not be limited to the political right and may serve different rhetoric purposes depending on the ideological orientation.

These findings suggest that within a media environment like Switzerland, ideological positioning influences how immigration is framed, especially during times of heightened public attention and direct democratic decision-making.

However, these findings should be interpreted with caution. The regression results indicate that some coefficients may be unstable, and certain categories suffered from limited case numbers, which can reduce the robustness of statistical comparisons.

3.8 Limitations

Despite these insights, several limitations affect the generalizability and validity of the findings. First of all, the use of the LLM for for the article classification introduced some constraints. The classification of the articles resulted in a substantial proportion of articles that couldn't be classified. Thus, the sample was reduced by about 40%. The smaller sample was problematic, as it limited the ability to make balanced comparisons across outlets with varying article counts.

Additionally some regression results produced very large standard errors, which complicates the interpretation of statistical significance. In certain cases, the classifications also defied expectations. For instance, in Task 5 on constructed oppositions, it was surprising to find left-leaning, pro-immigration outlets categorized as constructing "us vs. them" narratives. This raises questions about whether the task prompt may have been misunderstood or too vague. Despite multiple rounds of prompt testing and refinement, the validation of outputs was done manually and on a small sample, which may have left some misclassifications undetected.

Moreover, some categories may have been too broad, potentially reducing nuance. In Task 3 (Framing), the political/legal frame was very dominant, while the "no frame" category (0) was rarely used. This could suggesting either overclassification or that the framing categories were not sufficiently distinct. A similar issue could be seen in Task 4 (Sentiment), where neutral or concerned tones were most frequently assigned, possibly indicating difficulty in differentiating between mild evaluative language and true neutrality. This shows the need for more detailed follow-up analysis. Investigating these specific cases more closely could shed light on whether such framings reflect irony, critique, or deeper discursive shifts.

Finally, the study was deliberately designed to only focus on periods around major initiatives. This increases the salience, however excludes regular reporting. It could be beneficial, to compare the discourse during the initiatives with regular reporting periods.

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Appendix

3.9 Original prompt for the GPT API

You are an expert in Swiss politics, political communication, and media framing. You are highly familiar with how immigration debates are shaped in the press. You will be provided with Swiss newspaper articles related to immigration, published around the time of major initiatives (Volksabstimmungen). Your task is to carefully analyze each article and perform the following classification tasks, using the instructions provided for each task.

Task 1 - Relevance Analyze whether this article is relevant for a discourse analysis of immigration in the Swiss context. The article is relevant if it discusses immigration as an issue in Switzerland. This includes for example: immigration to Switzerland, Swiss political debates about immigration or asylum, Swiss parties (e.g. SVP, SP) or initiatives related to migration. Articles about immigration in other countries are not relevant, unless the article explicitly connects them to Swiss politics or society.

List of categories (return only the number in your final classification) 1: Relevant — the article discusses immigration in the Swiss context.

0: Not relevant — immigration is not discussed meaningfully, or only in a foreign/non-Swiss context.

Task 2 - Indirect Mention of Immigration Detect whether immigration is mentioned briefly or indirectly, and is not the main focus of the article. For example, immigration may

appear in only one sentence or sub-paragraph, as part of a larger discussion on another topic (e.g., economy, housing).

List of categories (return only the number in your final classification) 1: Immigration is mentioned briefly or indirectly, but is not the main topic.

0: Either immigration is not mentioned at all, or immigration is the main topic.

Task 3 - Framing of Immigration Determine how immigration is framed in the article. Each frame emphasizes certain aspects of immigration. Only classify the frame the article itself uses. Do not assign a frame just because the article quotes, summarizes, or describes what someone else says — unless the article clearly endorses, reinforces, or builds on that framing. If the article presents an argument but then debunks, distances itself, or mockingly reports it, do not assign that frame. Only assign a frame if that's how the article itself presents immigration. If multiple frames are present, chosoe the one that is most apparent, dominant or frequently emphasized in the article. If no framing of immigration is present, choose "0: Not applicable".

List of categories (return only the number in your final classification) 1: Economic frame. The article discusses immigration in terms of its impact on the economy. This includes effects on jobs, labor force or competition, welfare, or productivity. Migrants may be described as workers, taxpayers, economic burdens, or financial contributors.

2: Cultural/Identity frame. The article frames immigration as a cultural issue. The article focuses on immigration's effect on Swiss identity, values, language, religion or traditions. Migrants may be portrayed as culturally different or challenging to Swiss identity.

3: Security frame. The article frames immigration as a threat to public safety or order. This includes mention of crime, terrorism, instability, or uncontrolled borders. Migrants may be associated with risk and insecurity.

4: Humanitarian frame. The article presents migrants as people in need of help or protection. This frame emphasized suffering, vulnerability, or moral responsibility.

5: Political/Legal frame. The article focuses on on immigration as a legal or political issue. This includes laws, referendums, asylum procedures, or EU policy. Debates about sovereignty, institutions, or party positions also fall under this frame.

0: Not applicable.

Examples "Our economy depends on skilled foreign labor to fill critical gaps." Response: 1

"The SVP warns that immigration will destroy our national culture." Response: 0 (if not endorsed by the article) or 2 (if article reinforces this message)

"Critics say migrants burden the social system — but the data proves otherwise." Response: 5

Task 4 - Sentiment Toward Immigration Assess the emotional tone used when immigration or migrants are discussed in the article. Only evaluate the sentiment expressed toward immigration or migrants themselves.Do not classify emotional tone that is directed at political parties or actors, the media, campaigns or general opinions.If the article mentions fear, anger, or crisis, but is clearly critiquing, mocking, or distancing itself from those claims, do not assign that sentiment. If multiple sentiments are present, select the dominant or most consistent one. If you can not detect a sentiment, choose "0: Not applicable".

List of categories (return only the number in your final classification) 1: Hopeful. This includes immigration being seen as an opportunity, benefit, or positive force for society.

2: Sympathetic. This includes compassion for migrants or refugees, or emphasizes suffering, vulnerability, or moral duty in the context of immigration.

3: Neutral. The tone is strictly factual, descriptive, or statistical, without clear emotional framing.

4: Concerned / Uncertain. This includes expression of unease, ambiguity, or worry, but not in a strongly emotional or accusatory way. It aknowledges problems, but without panic or blame.

5: Fearful. This includes portraying immigration as dangerous, destabilizing, or threatening to public order, values, or safety. Immigration is described as an imminent, generalized threat, usually emotionally charged.

6: Angry. This includes blame, outrage, or emotionally charged criticism — often targeting migrants, elites, or institutions, or immigrants themselves.

7: Dismissive / Downplaying. This includes portraying immigration as exaggerated, unimportant, or overblown.

0: Not applicable.

Examples "Mass immigration could overwhelm our system." Response: 5

"The SVP warns that mass immigration could destroy our values — a claim widely debunked by experts." Response: 7

"The rapid pace of immigration is putting real pressure on schools and hospitals, and policymakers must act." Response: 4

Task 5 - Constructed Oppositions Identify whether the article constructs an opposition between "the Swiss" and migrants/foreigners. Oppositions define who belongs and who does not by attributing contrasting characteristics to in-groups and out-groups. This includes both explicit and implicit contrasts. This includes ascribing positive traits to "the Swiss", ascribing different or negative traits to immigrants/foreigners or using comparative languages, stereotypes or generalizations. Only classify an opposition as present if the article constructs, reproduces or reinforces a contrast between "the Swiss" and migrants/foreigners. Do not code 1 if the article quotes or describes someone else's oppositional framing but does not adopt it or critiques it.

List of categories (return either "0" or "1" in your final classification) 1: An opposition is present.

0: No opposition is present.

Examples "Unlike Swiss workers, many migrants lack basic qualifications." Response: 1

"Switzerland must preserve its values from outside influence." Response: 1

"The SVP claims that foreigners threaten Swiss jobs — but this fear is exaggerated and unsupported by evidence." Response: 0

"Many believe immigrants don't share Swiss values, yet recent studies show high integration success." Response: 0

At the end of your answer, return only the selected number for each task, in this exact format: 1 0 5 4 0

Do not include labels, descriptions, or any other text.

3.10 R Code

```
library(tidyverse)
Joined_Data_filtered <- read_csv("Data/analysis_data_relevant_only.csv")
nrow(Joined_Data_filtered)


Joined_Data_filtered |>
  select(medium_name) |>
  map(table)
Joined_Data_filtered <- Joined_Data_filtered |>
  mutate(code_3_numeric = as.numeric(as.character(code_3))) |>
  mutate(task3_collapsed = case_when(
    code_3_numeric %in% c(0, 3, 4) ~ 9,
    TRUE ~ code_3_numeric
  ))
```

```r
Joined_Data_filtered <- Joined_Data_filtered |>
  mutate(task3_collapsed = as.factor(task3_collapsed))

library(nnet)
m_frames_medium <- multinom(task3_collapsed ~ medium_name, data = Joined_Data_filtered)
summary(m_frames_medium)

library(ggeffects)
pred_frame <- ggpredict(m_frames_medium, terms = "medium_name")

Pred_Frame <- plot(pred_frame) +
  ggtitle("Predicted Probabilities of Frame") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

print(Pred_Frame)
Joined_Data_filtered |>
  count(code_4)

Joined_Data_filtered |>
  group_by(medium_name, code_3) |>
  summarise(n = n()) |>
  ungroup()

Joined_Data_filtered <- Joined_Data_filtered |>
  mutate(code_4_numeric = as.numeric(as.character(code_4))) |>
  mutate(task4_collapsed = case_when(
    code_4_numeric %in% c(1, 2) ~ 8, #hopeful & sympathetic => positive
```

```r
    code_4_numeric %in% c(0, 5, 7) ~ 9, #not applicable, fearful, dismissive => other
    TRUE ~ code_4_numeric
  ))


Joined_Data_filtered <- Joined_Data_filtered |>
  mutate(task4_collapsed = as.factor(task4_collapsed))


m_sentiment_medium <- multinom(task4_collapsed ~ medium_name, data = Joined_Data_filtere
summary(m_sentiment_medium)


#Predicted sentiment
library(ggeffects)
pred_sentiment <- ggpredict(m_sentiment_medium, terms = "medium_name")


Pred_Sentiment <- plot(pred_sentiment) +
  ggtitle("Predicted Probabilities of Sentiment") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
print(Pred_Sentiment)
Joined_Data_filtered |>
  count(code_5)


Joined_Data_filtered |>
  group_by(medium_name, code_5) |>
  summarise(n = n()) |>
  ungroup()


Joined_Data_filtered <- Joined_Data_filtered |>
```

```r
  mutate(code_5 = as.factor(code_5))


m_opposition_medium <- glm(code_5 ~ medium_name,

                           data = Joined_Data_filtered,

                           family = binomial)


summary(m_opposition_medium)


pred_opposition <- ggpredict(m_opposition_medium, terms = "medium_name")
Pred_Opposition <- plot(pred_opposition) +

  ggtitle("Predicted Probability of Constructed Opposition by Media Outlet") +

  theme_minimal() +

  theme(axis.text.x = element_text(angle = 45, hjust = 1))
print(Pred_Opposition)
```