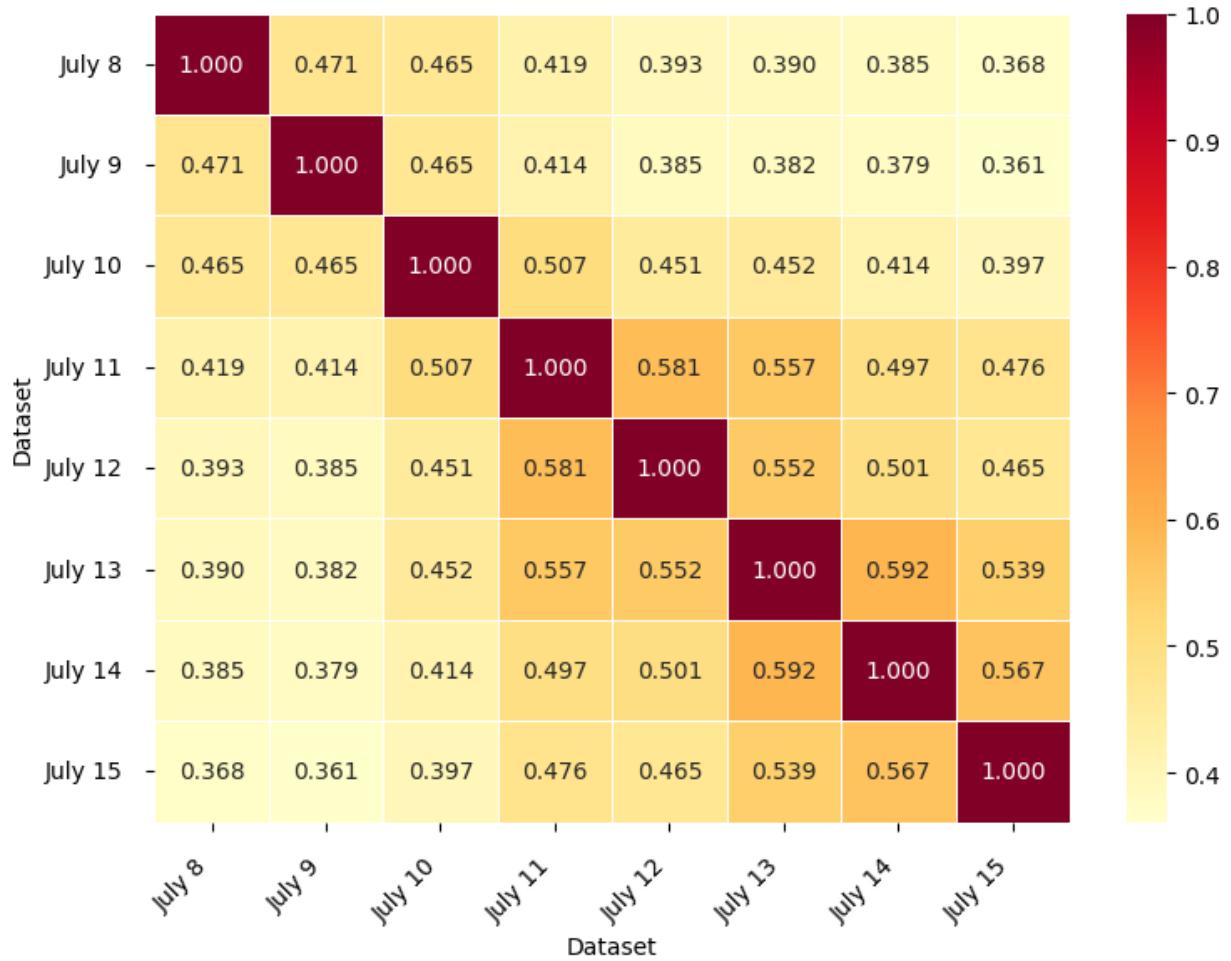


### Supplementary Material

#### Appendix A. Hashtags and keywords used to sample Canadian immigration content on TikTok ( $N = 5,305$ )

TikTok Search Query	Count of Unique Videos	Total in %
#canadianimmigration	586	11%
#canadapr	429	8%
#canadarefugee	408	8%
#canadiancitizenship	389	7%
#canadiancitizen	337	6%
#immigrationcanada	333	6%
“Canada foreign worker”	293	5%
“Canada permanent residency”	233	4%
“Canada deportation”	229	4%
#immigrantcanada	221	4%
“Canada migrant”	220	4%
“Canada asylum”	207	4%
#refugeecanada	170	3%
“foreign worker Canada”	138	3%
“permanent residency Canada”	120	2%
#canadaimmigrant	98	2%
“deportation Canada”	98	2%
“migrant Canada”	94	2%
“asylum Canada”	82	1%
“Canada citizenship”	77	1%
“citizenship Canada”	76	1%
“Canada immigrant”	73	1%
“deport Canada”	70	1%
“Canada immigration”	68	1%
“immigration Canada”	60	1%
“Canada deport”	60	1%
“refugee Canada”	51	1%
“immigrant Canada”	44	1%
“Canada refugee”	41	1%

**Appendix B. Jaccard similarity matrix of TikTok-assigned IDs in between-day datasets**



## Appendix C. Codebook for Manual Content Analysis of Immigration-Focused TikTok Videos

### Manual Detection of Immigration Stance and Frames in TikTok Videos

#### Where to Look

Stance toward immigration can be detected from observing i) the language used in the TikTok video itself (including audio, visual, or text overlays), and/or ii) the language used in the TikTok video's description or caption (located underneath the video on TikTok's web interface).

#### Anti-Immigration

**Definition:** Positioning immigration and/or immigrants as a net negative, emphasizing themes of threat, loss, and degradation.

#### List of Anti-Immigration Frames

##### Nationalism

- **Definition:** The **Nationalism Frame** is characterized by a strong in-group versus out-group dynamic, often emphasizing ethno-cultural homogeneity and expressing distrust or hostility toward those perceived as "foreign" to the national identity. Within this frame, immigration is portrayed as a threat to national sovereignty and unity, prompting calls to prioritize the nation's interests above all else, for example, in political rhetoric such as U.S. President Donald Trump's "America First" agenda.
- **Rule:** If a TikTok video articulates that immigrants pose a threat to national sovereignty, select the anti-immigration stance code. If a TikTok articulates that a nation ought to put its native-born population above immigrants, code as anti-immigration.

##### Cultural Threats

- **Definition:** The **Cultural Threats Frame** draws on the idea of culture as a fixed set of beliefs, values, and practices that must be preserved. It portrays immigrants as a danger to this stability, suggesting that "outsiders" with incompatible ways of life pose a threat to the in-group's traditions and identity.
- **Rule:** If a TikTok video articulates that immigrants pose a threat to tradition, custom, or "way of life," code as anti-immigration.

##### Integration Difficulties

- **Definition:** The **Integration Difficulties Frame** portrays immigrants as inherently incapable of assimilating into the host society. It often draws on racist stereotypes that depict foreign groups as violent, corrupt, dirty, or lazy. This Frame also implies that successful integration requires immigrants to abandon their cultural or religious practices and conform to the in-group's dominant, hegemonic culture.
- **Rule:** If a TikTok video articulates immigrants' barriers to assimilation as a result of intrinsic qualities, or that assimilation is a requirement for immigrants' integration, code as anti-immigration.

##### Economic Costs

- **Definition:** The **Economic Costs Frame** focuses on the perceived negative economic impacts of immigration. It suggests that immigrants increase competition for jobs and housing, drive down

wages, raise the cost of living, and contribute to shortages of goods. Through this lens, immigration is portrayed as a threat to the host society's economic stability and prosperity.

- **Rule:** If a TikTok video articulates the negative economic consequences of immigration, code as anti-immigration.

#### Administrative Costs

- **Definition:** The **Administrative Costs Frame** refers to the perceived strain that immigrants place on host-country public services, including health care, education, and social welfare programs. It portrays immigration as a financial burden on host-country taxpayers and a drain on publicly funded resources.
- **Rule:** If a TikTok video articulates the negative consequences of immigration on the nation's social welfare programs, code as anti-immigration.

#### Security Threats

- **Definition:** The **Security Threats Frame** portrays immigrants as potential dangers to national security and social cohesion. It often links immigrants and immigration to issues such as terrorism and rising crime rates. Those employing this frame tend to highlight specific cases of crimes committed by immigrants to reinforce their claims. This frame is often invoked to justify stronger border security as a necessary response to these perceived threats.
- **Rule:** If a TikTok video articulates that immigrants threaten social cohesion through: violent and non-violent crime, and/or acts of terrorism, select the anti-immigration stance code. Additionally, if a TikTok video highlights an instance of an immigrant committing a crime, while accentuating their immigration status as a reason for committing criminal or deviant acts, code as anti-immigration.

#### Anti-Immigration Other

- **Definition:** The **Anti-Immigration Other Frame** can encapsulate the use of frames that position immigration and/or immigrants in a negative manner, but does not clearly draw from any of the identified categories of frames.
- **Rule:** If a TikTok video articulates that immigration, and/or immigrants are a net negative to Canada but does not reference **Nationalism, Cultural Threats, Integration Difficulties, Economic Costs, Administrative Costs**, and/or **Security Threats**, code as anti-immigration.

### Pro-Immigration

**Definition:** Positioning immigration as a net positive, emphasizing themes of multiculturalism, moral appeals to justice and equality, and economic growth.

#### List of Pro-Immigration Frames

##### Multiculturalism

- **Definition:** The **Multiculturalism Frame** highlights the peaceful coexistence of diverse groups and the intercultural exchange of ideas, values, practices, and cultural products. It emphasizes openness and acceptance, portraying immigration as a positive force that enriches society through ethno-cultural diversity.

- **Rule:** If a TikTok celebrates immigrants as positively contributing to a country through their cultural ideas, values, practices, and products, select the pro-immigration stance code. Additionally, if a TikTok celebrates Canada's reputation as a multicultural country that is a hospitable and welcoming site for immigrants, code as pro-immigration.

### Humanitarianism

- **Definition:** The **Humanitarianism Frame** is rooted in moral universalism, emphasizing that all people, regardless of citizenship, have fundamental, inviolable rights. It promotes equality, fairness, and justice, guided by empathy and compassion. Within this frame, immigration is seen as a moral responsibility, highlighting the obligation to protect and uphold human rights.
- **Rule:** If a TikTok articulates that immigrants have "human rights" that are deserving of protection, select the pro-immigration stance code. Additionally, if a TikTok promotes equality, equity, or fairness between immigrants and the native-born population, select the pro-immigration stance code. Lastly, if a TikTok invokes the practical work performed by intergovernmental bodies and non-governmental organizations in advocating for, and advancing immigrant rights, code as pro-immigration.

### Cultural Integration

- **Definition:** The **Cultural Integration Frame** emphasizes equipping immigrants with the skills, knowledge, and cultural understanding needed to navigate and participate fully in their host society. This includes education on local customs, traditions, and social norms. Unlike the **Multiculturalism Frame**, which highlights the long-term benefits of a diverse cultural mosaic, the **Cultural Integration Frame** focuses on the immediate steps immigrants can take to engage with and adapt to the host culture.
- **Rule:** If a TikTok seeks to educate, or raise immigrants' awareness on how they can effectively participate within the host country's customs, traditions, or pastimes, select the pro-immigration stance code. If a TikTok emphasizes stories of immigrants' participation in local, regional, or national customs, traditions, or pastimes, or the consumption of local, regional, or national cultural goods (e.g., food, clothing), code as pro-immigration.

### Countering

- **Definition:** The **Countering Frame** is used to challenge and critique anti-immigrant speech, such as xenophobic, racist, or nativist rhetoric. It is grounded in anti-discrimination principles and promotes equality and human rights. While it shares a moral foundation with the **Humanitarianism Frame**, **Countering** is reactive, relying on the presence of a xenophobic stimulus to respond to.
- **Rule:** If a TikTok articulates an explicit challenge to xenophobic speech—be it myth, stereotype, or otherwise misinformation—code as pro-immigration.

### Economic Benefits

- **Definition:** The **Economic Benefits Frame** emphasizes the positive contributions immigrants make to a country's economy. This includes expanding the labour force, increasing the tax-paying population to support public programs and services, and providing highly skilled workers who advance national interests. In this frame, immigration is portrayed as a driver of economic growth and prosperity.

- **Rule:** If a TikTok contends that immigration creates economic prosperity and growth, select the pro-immigration stance code. Additionally, if a TikTok frames immigrants' economic contributions in terms of labour force participation, job creation, or tax revenue, code as pro-immigration.

#### Pro-Immigration Other

- **Definition:** The **Pro-Immigration Other Frame** encapsulates all instances where immigration and/or immigrants are framed as a net positive to the host country, but where the language does not clearly draw from any of the identified categories.
- **Rule:** If a TikTok argues that immigration and/or immigrants are a net positive to Canada but does not reference **Multiculturalism, Humanitarianism, Cultural Integration, Countering, and/or Economic Benefits**, code as pro-immigration.

#### Neutral

- **Definition: Neutral** includes instances where The TikTok contains both pro- and anti-immigration frames, such that it presents a “balanced” take on the value of immigration. Beyond instances where two individuals debate the merits of immigration and/or immigrants from competing viewpoints, neutral will also include instances where an individual balances the “pros” and “cons” of immigration and/or immigrants. A TikTok may also be coded as neutral if it does not contain any clearly identifiable stance on immigration, but is nevertheless topically relevant. This may include cases of videos that test your ability to “pass” citizenship questions, and videos that present demographic statistics related to immigration, but do not offer critical reflection on these statistics that invoke a particular stance. Lastly, public (e.g., CBC News) or national broadcasters (e.g., CTV News) should *not* be presumed as neutral. The coder should reflect on whether the video is simply amplifying pro- or anti-immigration frames with no substantive challenge or pushback, or seeking to provide a balanced discussion on the topic by including multiple points of view, or fact-checking misinformation.
- **Rule:** If a TikTok provides a “both sides” discussion style surrounding immigration, code as neutral. If a TikTok is topically about immigration, but does not contain an explicit stance, code as neutral.

#### Unrelated

- **Definition: Unrelated** includes instances where the TikTok is not on the topic of immigration, such that immigration not discussed whatsoever, or is otherwise secondary to the primary topic being discussed; in cases where immigration is discussed in the context of internal migration (e.g., interprovincial, or intercity); or false positives where immigration is discussed in a context that is not relevant to human immigration.
- **Rule:** If a TikTok does not feature Immigration as the primary topic of focus, code as unrelated. If a TikTok discusses immigration in relation to internal migration (i.e., inter-city, or inter-provincial human migration), code as unrelated. If a TikTok discusses immigration in reference to non-human species, code as unrelated.

**Appendix D. Intercoder reliability for immigration stance and framing categories ( $n = 356$ )**

Variable	Krippendorff's $\alpha$	Coder Agreement, %
Immigration Stance	0.96	97.2%
Pro-Immigration Frame: Multiculturalism	0.89	99.7%
Pro-Immigration Frame: Humanitarianism	0.94	99.7%
Pro-Immigration Frame: Cultural Integration	1.00	100%
Pro-Immigration Frame: Countering	0.96	99.7%
Pro-Immigration Frame: Economic Benefits	1.00	100%
Pro-Immigration Frame: Pro-Immigration Other	0.96	98.3%
Anti-Immigration Frame: Nationalism	0.93	99.7%
Anti-Immigration Frame: Cultural Threats	0.94	99.7%
Anti-Immigration Frame: Integration Difficulties	1.00	100%
Anti-Immigration Frame: Economic Costs	0.98	99.7%
Anti-Immigration Frame: Administrative Costs	0.89	99.7%
Anti-Immigration Frame: Security Threats	1.00	100%
Anti-Immigration Frame: Anti-Immigration Other	1.00	100%

## Appendix E. Codebook for Automated Content Analysis of TikTok's Affordances

### Operationalization of Vizcaíno-Verdú and Jaramillo-Dent's Memetic Interactivity Codebook (2023)<sup>1</sup>

**Table 1.** Metadata fields to observe TikTok's affordances

Affordance	Metadata Field(s)	Description
Visual	data.anchors	Effects can be located in the data.anchors column in the 'keyword' subfield. To qualify as an effect, the 'description' subfield should be populated with the term 'Effects' and NOT 'CapCut AI Video Editor.' The latter is a video editing tool owned by ByteDance (TikTok's parent company).
Audio	data.author.nickname NOT EQUAL to data.music.authorName	data.author.nickname refers to the video's creator, and data.music.authorName refers to the audio or Sound's creator. If the values of these fields are different, it indicates that the audio is not original to the video.
Sharing	data.desc	Field contains the video's description; this field can be used to detect the presence of Duets (i.e., #duet with), Stitches (i.e., #stitch with), Reply to Comment with Video (i.e., Reply to), and hashtags (i.e., the use of #...challenge, or #...tok, #...tiktok, or #tiktok...).
		It can also be used to detect if the user is inviting participation from other users through engagement (i.e., likes, shares, comments, Stitches, Duets, etc.), or calling on others to use a particular Sound or hashtag.
	data.stickersOnItem	Field is populated if the TikTok video contains a Sticker; it provides information on the text written within the Sticker, which can be used to determine if the text overlay is inviting participation from other users through engagement (i.e., likes, shares, comments, Stitches, Duets, etc.), or calling on others to use a particular Sound or hashtag.

**Table 2:** Metadata fields to observe mimesis in the antecedent condition

Affordance	Metadata Field(s)	Description
Visual	data.anchors	If the video contains an effect, IT IS imitating the use of a visual affordance; otherwise, IT IS NOT imitating the use of a visual affordance.

<sup>1</sup> Disclaimer: The lists of phrases and keywords used to automate detection within these tables were manually created for English data only. Before applying this coding schema to a new data, please ensure you update the rules to ensure that they align with the context and language of your data. Additionally, please note that these are the metadata field names assigned by Zeeschuimer when collecting TikTok data as of July 2025. These field names are subject to change, or become unavailable.

		Effects can be located in the data.anchors column in the ‘keyword’ subfield. To qualify as an effect, the ‘description’ subfield should be populated with the term Effects and NOT ‘CapCut AI Video Editor.’ The latter is a video editing tool owned by ByteDance (TikTok’s parent company).
Audio	data.author.nickname NOT EQUAL TO data.music.authorName	If the text string in data.author.nickname is NOT EQUAL TO data.music.authorName, then the video IS imitating existing content; otherwise, it IS NOT imitating existing content.
Sharing	data.challenges.title  data.challenges.desc	If the video contains a hashtag with the term Challenge <i>following</i> a qualifying word in data.challenges.title OR if the video contains a hashtag with the ‘desc’ subfield filled in data.challenges AND that ‘desc’ subfield references participation (e.g., “Use this hashtag,” or “Show us,” etc.), then the video IS imitating existing content; otherwise, it IS NOT imitating existing content.  Note: Manual checks should be performed as not all hashtags are challenges. This can be done by reviewing the hashtag’s landing page (e.g., <a href="https://www.tiktok.com/tag/">https://www.tiktok.com/tag/</a> ).

**Table 3:** Metadata fields to observe mimesis in the effect condition

Affordance	Metadata Field(s)	Description
Sharing	data.stickersOnItem  data.desc	If either the video’s Sticker (data.stickersOnItem) or its description (data.desc) promotes the re-use of the video’s audio as detected by the following regular expression, IT IS promoting imitation; otherwise, it IS NOT promoting imitation.  Case-insensitive regular expression to identify promotion: (try this audio try this sound use this audio use this sound remix this audio add this sound add this audio)

**Table 4:** Metadata fields to observe interactivity in the antecedent condition

Affordance	Metadata Field(s)	Description
Sharing	data.desc	If the video’s description includes “#duet with,” “#stitch with,” “Reply to,” or hashtags such as #...tok, #...TikTok, #TikTok..., the video DOES derive from an interaction.  Note: The identification of tok-based hashtags required manual validation checks, as automated matching based on

regular expressions can produce false positives. For instance, #tokyo or #goviraltiktok are false positives, as although they contain #tok or #tiktok in the hashtag's title, they do not reference a content creation community.

**Table 5:** Metadata fields to observe interactivity in the effect condition