Two tales of one city:
Unveiling the sentiments and conceptual metaphors for a pandemic in Macao

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Contents

The Question

To what extent can we understand Macao residents' lives during the COVID-19 pandemic by examining textual information in both the prominent official and social media?

We examine:
- Theme/topic/topos (cf. Baker et al. 2008)
- Sentiments expressed: esp. positive v negative
- Metaphors for the pandemic and lives under Covid-19

The Project

HOPE and PAIN in the Time of a Pandemic:
A Corpus-based Study of Metaphor and Synaesthesia in Macau (Phase 1)

瘟疫期間的希望與痛楚---基於澳門語料的隱喻和通感研究
(第一階段)

Data

Macao Daily

Supportive to the local government, elites' opinions

CHUCHU Channel

Youtube comments
General public; Grass-root residents
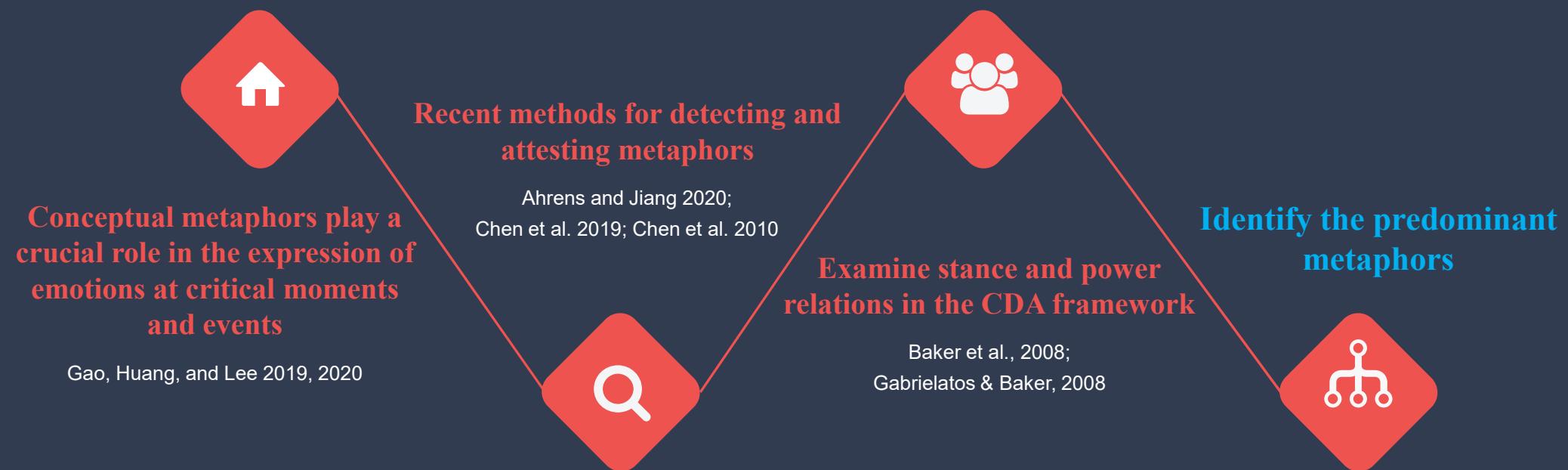
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Method

Conceptual metaphors play a crucial role in the expression of emotions at critical moments and events

Gao, Huang, and Lee 2019, 2020

Recent methods for detecting and attesting metaphors

Ahrens and Jiang 2020;
Chen et al. 2019; Chen et al. 2010

Examine stance and power relations in the CDA framework

Baker et al., 2008;
Gabrielatos & Baker, 2008

Identify the predominant metaphors

Results

## Word Clouds

Macao Daily

CHUCHU Channel
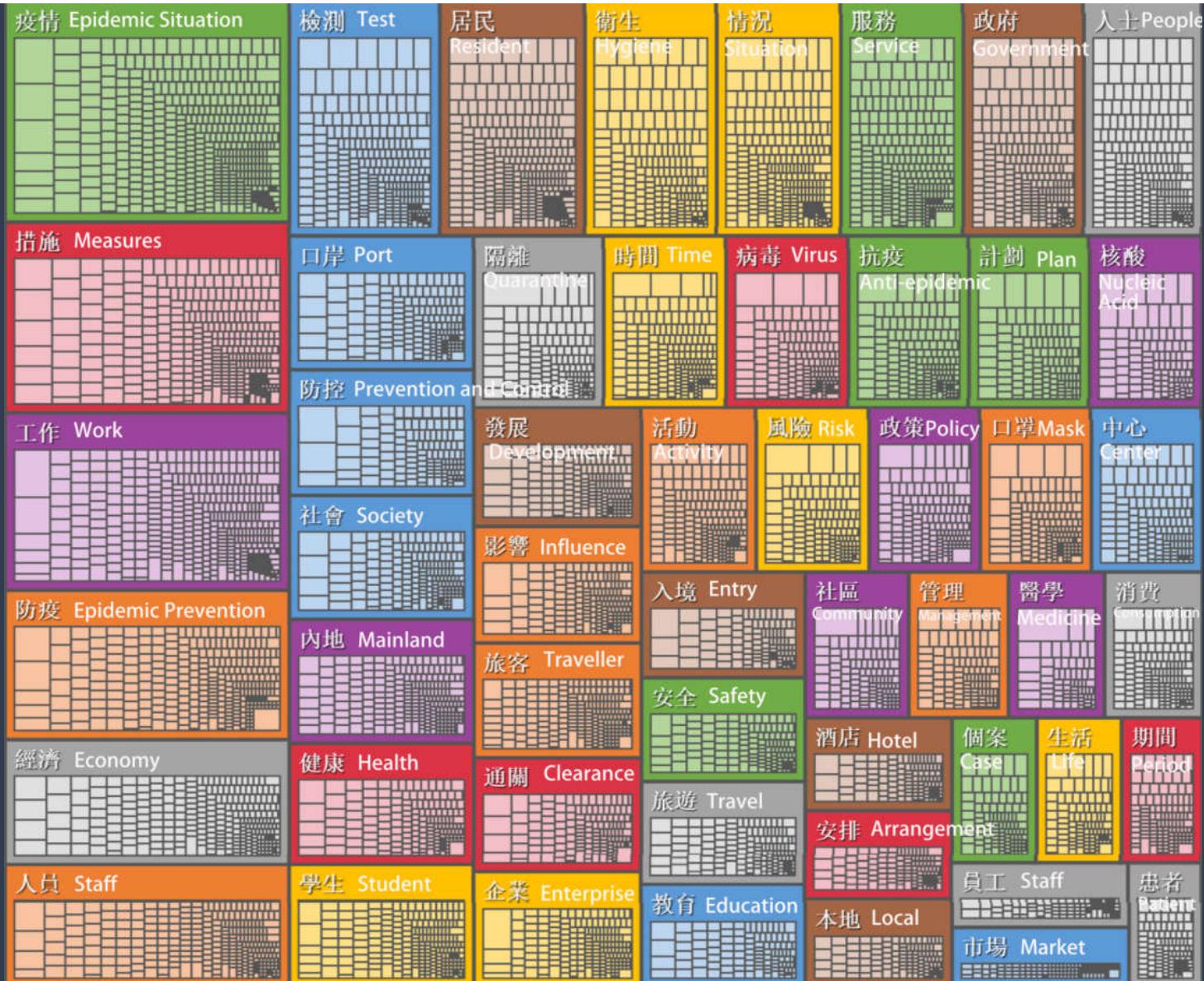
Results

Themes

Macao Daily

Cf. Nvivo's system for auto-coding themes:
https://help-nv.qsrinternational.com/12/win/v12.1.96-d3ea61/Content/coding/auto-detect-code-themes.htm
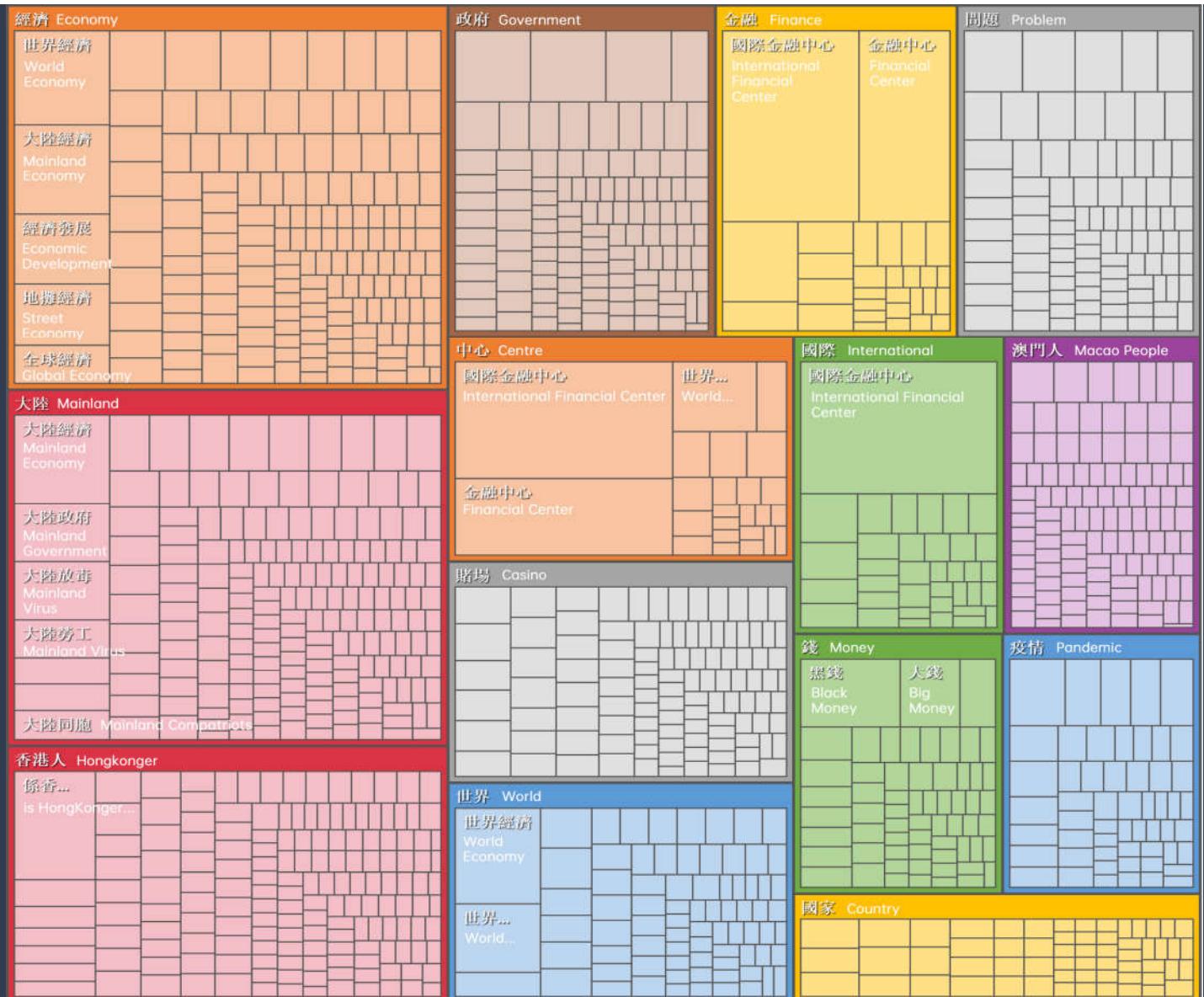
Results

Themes

CHUCHU Channel

Results

Themes by month

Macao Daily

month	1	2	3	4	5	6	7	8	total
AU ： 疫情 'pandemic'	114	88	116	129	185	98	106	155	991
E ： 措施 'measure'	169	87	96	103	138	49	55	147	844
M ： 工作 'task'	166	72	68	76	154	39	28	136	739
H ： 防疫 'anti-pandemic'	97	66	65	73	109	48	46	102	606
X ： 居民 'residents'	74	68	66	53	134	43	47	97	582
V ： 經濟 'economy'	37	45	44	103	103	54	82	98	566
S ： 檢測 'testing'	42	9	7	32	223	41	48	147	549
AI ： 人員 'personnel'	115	50	42	67	103	32	34	101	544
AG ： 情況 'situation'	129	31	32	93	93	34	27	95	534
AH ： 人士 'people'	83	32	45	63	105	21	57	78	484
AY ： 政府 'government'	100	78	68	50	74	14	15	68	467
J ： 服務 'service'	68	62	47	28	120	26	22	82	455
AQ ： 衛生 'health'	159	26	33	51	62	28	26	50	435
AD ： 內地 'mainland'	66	28	16	38	95	20	38	101	402
AS ： 學生 'students'	24	61	81	37	126	15	12	34	390
AN ： 時間 'time'	62	27	23	49	115	23	18	63	380
AB ： 旅客 'tourists'	108	15	11	18	63	16	29	109	369
Z ： 口岸 'customs'	108	14	16	41	72	16	14	76	357
AK ： 社會 'society'	45	37	46	38	79	30	26	54	355
D ： 病毒 'virus'	71	47	27	54	51	24	26	53	353
AV ： 影響 'influence'	60	45	51	26	61	18	15	65	341
AA ： 口罩 'mask'	106	39	30	26	84	15	14	24	338
[…]									
O ： 核酸 'nucleic acid'	1	0	1	18	121	25	31	73	270
AC ： 旅遊 'tourism'	36	8	6	19	57	11	33	97	267

Results

Themes by month

CHUCHU Channel

The month of 2020	3	4	5	6	7	8	total
大陸 'mainland'	13	15	88	54	39	40	249
經濟 'economy'	12	26	57	58	45	24	222
香港人 'Hongkonger'	5	8	59	58	23	22	175
政府 'government'	13	24	70	19	19	12	157
賭場 'casino'	3	11	35	23	29	23	124
澳門人 'Macao people'	4	6	50	25	20	14	119
問題 'problem'	5	16	28	30	24	10	113
世界 'world'	5	17	26	30	15	10	103
錢 'money'	4	11	41	15	13	12	96
疫情 'pandemic'	7	10	23	12	16	11	79
金融 'finance'	0	13	26	18	10	8	75
國家 'country'	0	6	27	15	13	10	71
中心 'centre'	0	13	25	16	10	5	69
國際 'international'	4	12	20	17	11	3	67
total	75	188	575	390	287	204	1719

Metaphors: types and distributions

- **WAR** (with several subtypes)
- Virus is a CUNNING PERSON
- Pandemic is a **MONSTER**
- Pandemic is a **WILD VINE**
- Economy is a RECOVERING CREATURE
- **HARD JOURNEY**
- **TIDING**
- Natural **DISASTER**
- TRIAL

Multiple interpretations rather than a singular one about the pandemic – which can be effectively captured by distinct conceptual metaphors – need to be endeavoured by policy makers in the middle of the unprecedented uncertainties.

(cf. Chater, 2020)

WAR			
Explosive	爆發 271/226 Explosive	爆疫 /7 Explosive Pandemic	
Assault	衝擊 **Assault Impact**/98 打擊 Strike/93 抗擊 Resistance/28 攻擊 Attack/7 阻擊戰 Blocking Battle/5	重創 **Heavy Damage** 12 創傷Trauma 5	襲 Assault 21: 來襲 Invasion 11, 侵襲 Invasion 2 , 突襲 Strike 2, 襲捲 Roll Up 1, 襲擊Assault 1
Battle	戰 : 挑戰 Challenge 72 (抗)疫戰 (Anti) Epidemic War 16 戰"疫" Fight Epidemic 8 戰役/6 Epidemic 戰勝 Victory /12 戰略 Strategy /12	保衛戰 Defensive Battle /4, 攻堅戰 Tough Battle /2, 防疫戰 Epidemic Defend War /3, 齊奮戰 Fight together /5, 阻擊戰 Blocking Battle /5	打仗 Fight 12
Defence	嚴陣(以待) Be in battle array and wait for the arrival of the enemy 17	防範 Defence 66	對抗 Combat 39
Combat	前線 Frontline 195	殺到 Kill to 4殺滅 Eliminate 9	
Defeat	克服難關 Overcome Difficulties/困難Difficulties 15	共克時艱 over the current hard time 8	遏止 Restrain 17
Endure	(疫下)苦撐 (Under the epidemic) Struggle	撐不住 Can't hold on	支撐 Sustain 38 撐過/2 Survived
Virus is a CUNNING PERSON	狡猾 Cunning 1 狡詐 Crafty 1		
Pandemic is a monster	肆虐 Rage 58		
Pandemic is a wild vine	蔓延 Spread 116		
Economy is RECOVERING creature	復甦 resuscitate 247	舒緩 Soothe 52	
HARD JOURNEY	難關 Tight Squeeze60 艱難(險阻) Difficulties 22	把關 Guard a pass 22	征途 Journey 3
	(陷入)困境(Stuck in) Predicament 56 逆境 Adversity 21	(重回)正軌(Back) on track 22 谷底 Valley Bottom 12	閉環 Closed Loop 19 斷崖式 Cliff Type 5
TIDING	(一)波(One) Wave 52 (疫情) (Epidemic)	來勢洶洶 Break in in full fury /洶湧 Turbulent 11	溯源 Tracing to the source 7
	分流 Diversion 102	堵疫 Stop the epidemic	抵疫 前行 Against the epidemic and forward 2
	紓緩 Relieve 68放緩 Slow down 11 漸緩 Stabilize gradually	平穩 Stable 7 平息 Calm down 3	回流Backflow 3
NATURAL **DISASTER**	天災(人禍) Natural Disaster (Man-made Disaster)	陰霾 Haze 12	
TRIAL	考驗 Trial 18		

Sentiments

Macao Daily

The month of 2020	1	2	3	4	5	6	7	8	average
Positive score: Mean	0.417	0.467	0.526	0.495	0.548	0.583	0.519	0.527	**0.510**
Positive score: S.D.	0.307	0.319	0.293	0.305	0.313	0.311	0.321	0.311	**0.310**
Positive score: Median	0.415	0.445	0.518	0.490	0.557	0.606	0.489	0.511	**0.504**
Confidence: Mean	0.566	0.576	0.510	0.527	0.558	0.541	0.547	0.524	**0.543**
Number of articles	235	245	221	148	290	145	164	225	**209**
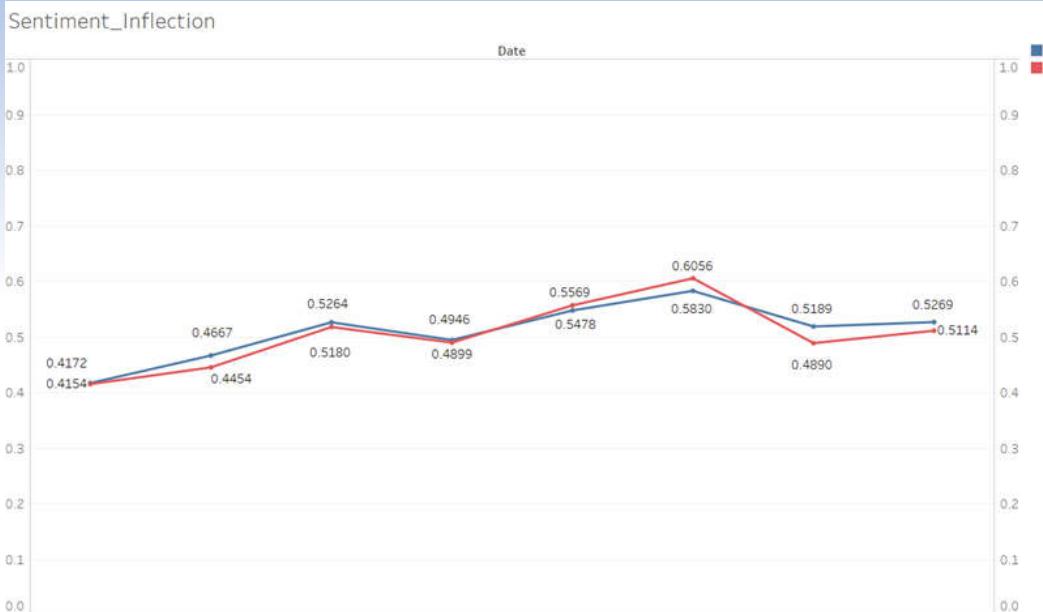
CHUCHU Channel

The month of 2020	3	4	5	6	7	8	average
Positive score: Mean	0.350	0.344	0.359	0.359	0.385	0.364	**0.360**
Positive score: S.D.	0.375	0.377	0.378	0.375	0.396	0.385	**0.381**
Positive score: Median	0.173	0.134	0.160	0.167	0.180	0.163	**0.163**
Confidence: Mean	0.745	0.757	0.747	0.740	0.770	0.763	**0.754**
Number of Comments	613	1379	2856	1416	1240	873	**1396**

Sentiments
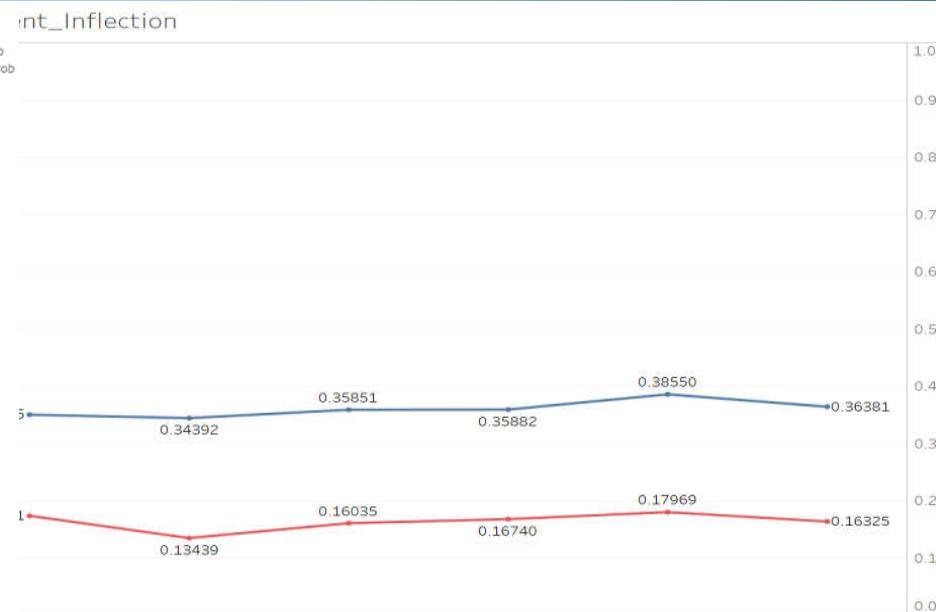
Macao Daily

CHUCHU Channel

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Mean	0.350	0.344	0.359	0.359	0.385	0.364
Median	0.173	0.134	0.160	0.167	0.180	0.163

Sentiment_Inflection

nt_Inflection

Discussion

1. Technical issues for sentiment analysis

-   Baidu sentiment analysis tool, for shorter web-based reviews/comments on hotels and so on, rather than longer articles like those in Macao Daily

2. Bentley et al. (2014) two-dimensional model:

-   north-south: informed v impulsive decisions

-   East-West: collectivistic v individualistic approach
    e.g., 團結 MD 60 (93.78 per million), CCC 11 (59.7 per million)

3. The 'gap' between Macao Daily and ChuChu Channel in positivity

References

Ahrens, K., & Jiang, M. (2020, 2020/01/02). Source Domain Verification Using Corpus-based Tools. *Metaphor and Symbol, 35*(1), 43-55. https://doi.org/10.1080/10926488.2020.1712783

Baker, P., Gabrielatos, C., KhosraviNik, M., Krzyżanowski, M., McEnery, T., & Wodak, R. (2008). A useful methodological synergy? Combining critical discourse analysis and corpus linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse & Society, 19*(3), 273-306. https://doi.org/10.1177/0957926508088962

Bentley, R. A., O'Brien, M. J., & Brock, W. A. (2014). Mapping collective behavior in the big-data era. *Behavioral and Brain Sciences, 37*(1), 63-76. https://doi.org/10.1017/S0140525X13000289

Chater, N. (2020, 2020/05/01). Facing up to the uncertainties of COVID-19. *Nature Human Behaviour, 4*(5), 439-439. https://doi.org/10.1038/s41562-020-0865-2

Chen, I.-H., Long, Y., Lu, Q., & Huang, C.-R. (2019). Metaphor Detection: Leveraging Culturally Grounded Eventive Information. *Ieee Access, 7*, 10987-10998. https://doi.org/10.1109/access.2019.2892042

Chen, Y., Lee, S. Y. M., Li, S., & Huang, C.-R. (2010). Emotion cause detection with linguistic constructions. Proceedings of the 23rd International Conference on Computational Linguistics,

Gabrielatos, C., & Baker, P. (2008). Fleeing, sneaking, flooding: A corpus analysis of discursive constructions of refugees and asylum seekers in the UK press, 1996-2005. *Journal of English Linguistics, 36*(1), 5-38. https://doi.org/10.1177/0075424207311247

Gao, X., Huang, C.-R., & Lee, S. Y.-M. (2019). Epistemic Marker, Event Type and Factivity in Emotion Expressions. In R. Otoguro, M. Komachi, & T. Ohkuma (Eds.), *Proceedings of the 33rd Pacific Asia Conference on Language, Information and Computation* (pp. 29-36).

Gao, X., Huang, C.-R., & Lee, S. Y.-M. (2020). Conceptual Metaphor in Emotion Expressions in Mandarin Chinese. In Q. Su & W. Zhan (Eds.), *From Minimal Contrast to Meaning Construct* (pp. 211-222). Springer.

McEnery, T., Brezina, V., & Baker, H. (2019). Usage Fluctuation Analysis: A new way of analysing shifts in historical discourse. *International Journal of Corpus Linguistics, 24*(4), 413-444.

Wolfer, S., Koplenig, A., Michaelis, F., & Müller-Spitzer, C. (2020). Tracking and analyzing recent developments in German-language online press in the face of the coronavirus crisis *International Journal of Corpus Linguistics, 25*(3), 347–359.